

ISSN #1941-7519 (printed)
#1941-7527 (online)

Opuscula Philolichenum

Issue Spanning: January – December 2018
VOLUME 17

Published by J.C. Lendemer
Bronx, New York, U.S.A.

Opuscula Philolichenum

small works in the field of lichenology

EDITOR:

JAMES C. LENDEMER

*Institute of Systematic Botany
The New York Botanical Garden
Bronx, NY 10458-5126, U.S.A.
e-mail: jlendemer@nybg.org*

ASSOCIATE EDITORS:

KERRY KNUDSEN

*The Herbarium
Dept. of Botany & Plant Sciences
The University of California, Riverside
Riverside, CA 92521-0124, U.S.A.
e-mail: kk999@msn.com*

CALEB A. MORSE

*R.L. McGregor Herbarium
Division of Botany
Biodiversity Research Center, University of Kansas
2045 Constant Ave., Lawrence, KS 66047, U.S.A.
e-mail: cmorse@ku.edu*

MISSION

Opuscula Philolichenum is intended to serve as a venue for the publication of small works in the field of lichenology (including lichenicolous fungi and non-lichenized fungi traditionally treated with lichens). The central goal of the journal is to provide timely publication, in a professional format, free of charge to authors and readers. While the journal focuses on topics relating to the lichen biota of North America this is by no means exclusive and manuscripts on other topics will be considered as the table of contents of the present issue clearly illustrates.

Authors wishing to submit a manuscript for publication in *Opuscula Philolichenum* should contact the editor prior to submission to confirm that the paper conforms to the mission of the journal (outlined above). Manuscript submissions should be left unformatted and authors should consult a recent issue of *Opuscula Philolichenum* for style. All submissions are subjected to review by at least two peer reviewers and, following acceptance are formatted by the editor.

NOTICE FROM THE EDITOR

When this journal began publication ten years ago it was among the first serials to take advantage of the internet when publishing new botanical nomenclatural acts. The journal was conceived as a primarily electronic one, available on-line free of charge (at <http://sweetgum.nybg.org/philolichenum/>), with a limited print run to satisfy the requirements for effective publication established under the *International Code for Botanical Nomenclature*. Since that time we have continued to publish the journal in this manner, printing one or two issues a year, with each issue consisting of between one and two hundred pages.

In 2004 we could not have foreseen the revolutionary changes that took place at the 18th International Botanical Congress in Melbourne. There the Nomenclature Section voted to allow electronic only publication of new nomenclatural acts beginning 1 January 2012. In response to this change *Opuscula Philolichenum* no longer produces hardcopy. Although a single printed copy will continue to be deposited in the library of The New York Botanical Garden.

Beginning with volume number 12 of *Opuscula Philolichenum*, manuscripts are published electronically on-line in PDF/A format immediately following the approval of the authors in the post-review proof stage. The PDF issued online is considered to be the final version (= version of record) and the date on which the PDF is posted is considered to be the date of effective publication. In order to aid future workers the date of effective publication for each manuscript is provided in the table of contents. When a new manuscript is published online a record is also simultaneously transmitted to the organizers of *Recent Literature on Lichens* for inclusion in that database.

Table of Contents

Front Matter	i-v.
effectively published online 17 January 2018:	
Tønsberg, T. <i>Varicellaria lactea</i> new to the U.S.A. from Alaska.	1-5.
effectively published online 29 January 2018:	
Esslinger, T.L. A Cumulative Checklist for the Lichen-Forming, Lichenicolous and Allied Fungi of the Continental United States and Canada, Version 22.	6-268.
effectively published online 31 January 2018:	
Lendemer, J.C. and I.M. Brodo Studies in Lichens and Lichenicolous Fungi – No. 21: Notes on <i>Lambiella caeca</i> and <i>L. fuscusora</i>	269-274.
McMullin, R.T. New and interesting lichens and allied fungi from British Columbia, Nova Scotia, Nunavut, Ontario, Prince Edward Island, and Quebec, Canada.	275-292.
effectively published online 20 April 2018:	
Kocourková, J. and K. Knudsen <i>Stigmidium rouxanium</i> (Mycosphaerellaceae, Dothideomycetes), reported new for North America and California.	293-298.
effectively published online 1 June 2018:	
Villella, J., T. Carlberg, D. Stone, J.E.D. Miller, N. Nelson and L. Calabria Diversity and floristic patterns of epiphytic macrolichens on white oak in the Klamath-Siskiyou region.	299-318.
effectively published online 27 July 2018:	
Perlmutter, G.B. and E. Rivas Plata New combinations and notes on <i>Buellia</i> and <i>Rostania</i> .	319-321.
effectively published online 18 August 2018:	
Konoreva, L., S. Chesnokov, I. Stepanchikova, I. Frolov, L. Gagarina and S. Tchabanenko Discovery of <i>Coenogonium isidiatum</i> (Coenogoniaceae, Ostropomycetidae) disjunct in northeastern Asia.	322-329.
effectively published online 20 September 2018:	
Knudsen, K., J. Kocourková and T. Wheeler Neotypification of <i>Sarcogyne integra</i> (Acarosporaceae).	330-334.
effectively published online 12 October 2018:	
McMullin, R.T. and L. Sharp Lichens of Canada Exsiccati, Fascicle I, Nos. 1-25.	335-341.
Knudsen, K. and J. Kocourková Two new calciphytes from Western North America, <i>Acarospora brucei</i> and <i>Acarospora erratica</i> (Acarosporaceae).	342-350.
Hansen, C.J. A preliminary lichen checklist of the Redstone Arsenal, Madison County, Alabama.	351-361.

effectively published online 24 October 2018:

Tripp, E.A., R. Agabani and R.T. McMullin
New and noteworthy reports of Colorado lichens and lichen allies, 1: *Phaeocalicium polyporaeum*.

362-367.

effectively published online 12 November 2018:

Zhurbenko, M.P. and Y. Ohmura
Contributions to the knowledge of lichenicolous fungi on *Thamnolia*.

368-373.

effectively published online 31 December 2018:

Tsurykau, A.
A provisional checklist of the lichens of Belarus.

374-479.

,

Varicellaria lactea new to the U.S.A. from Alaska

TOR TØNSBERG¹

ABSTRACT. – *Varicellaria lactea* is reported new to the U.S.A. from Katmai National Park and Preserve and Lake Clark National Park, both in Alaska. It was found on slightly overhanging rock walls on lake shores. The specimens agree well morphologically and chemically with material from Scandinavia (Norway) used for comparison.

KEYWORDS. – Crustose lichens, soralia, range extension, *Lepra*.

INTRODUCTION

Based on molecular methods the old genus *Varicellaria* Nyl. was recently given a new circumscription (Schmitt et al. 2012). Seven species previously regarded as belonging to *Pertusaria* DC., e.g. by Dibben (1980) in his monograph for North America, were transferred to *Varicellaria* (Schmitt et al. 2012). Species of *Varicellaria* have disciform apothecia, non-amyloid hymenial gel, amyloid asci containing 1–2, simple or 1-septate spores with unzoned walls and a thallus containing lecanoric acid (Schmitt et al. 2012). Three species of *Varicellaria*, *V. lactea* (L.) Schmitt & Lumbsch, *V. rhodocarpa* (Körb.) Th. Fr. and *V. velata* (Turner) Schmitt & Lumbsch have been reported from North America (Esslinger 2016, Lendemer & Harris 2017, McMullin et al. 2017, Schmitt et al. 2012).

Fieldwork in Katmai National Park and Preserve and Lake Clark National Park, both in Alaska, in 2013 and 2014, yielded two specimens of *Varicellaria lactea*. As the species has previously been reported in North America only from Canada (McMullin et al. 2017), these finds are reported and illustrated here.

MATERIALS AND METHODS

Herbarium specimens

This study is based on the author's fieldwork in Alaska in the U.S.A., in addition to herbarium material in BG and UPS. The author's collections from North America will be deposited in BG; duplicates, as far as the material permits, will be deposited in ALA and OSC.

Morphological and chemical studies

The morphological characterization of the species was based on the material deposited in BG (about 30 specimens from Norway), if not otherwise stated. Soralia were sectioned in search of hymenia. Thin-layer chromatography (TLC) was carried out according to Culberson and Kristinsson (1970), Culberson (1972), and Menlove (1974). All the three solvents recommended by these authors were used, with aluminium plates in solvents A and B' and, to allow for the detection of fatty acids, glass plates in solvent C.

RESULTS AND DISCUSSION

***Varicellaria lactea* (L.) Schmitt & Lumbsch**, Mycokeys 4: 31. 2012. ≡ *Lichen lacteus* L., Mant. Pl. 1: 132. 1767. **TYPE: SWEDEN, VÄSTERGÖTLAND:** Mularp, 6.viii.1922, leg. E. Vrang s.n. (UPS!, neotype [designated by Jørgensen et al. 1994]).

¹TOR TØNSBERG – Department of Natural History, University Museum, University of Bergen, Allégaten 41, P.O. Box 7800, N-5020 Bergen, Norway. – e-mail: tor.tonsberg@uib.no

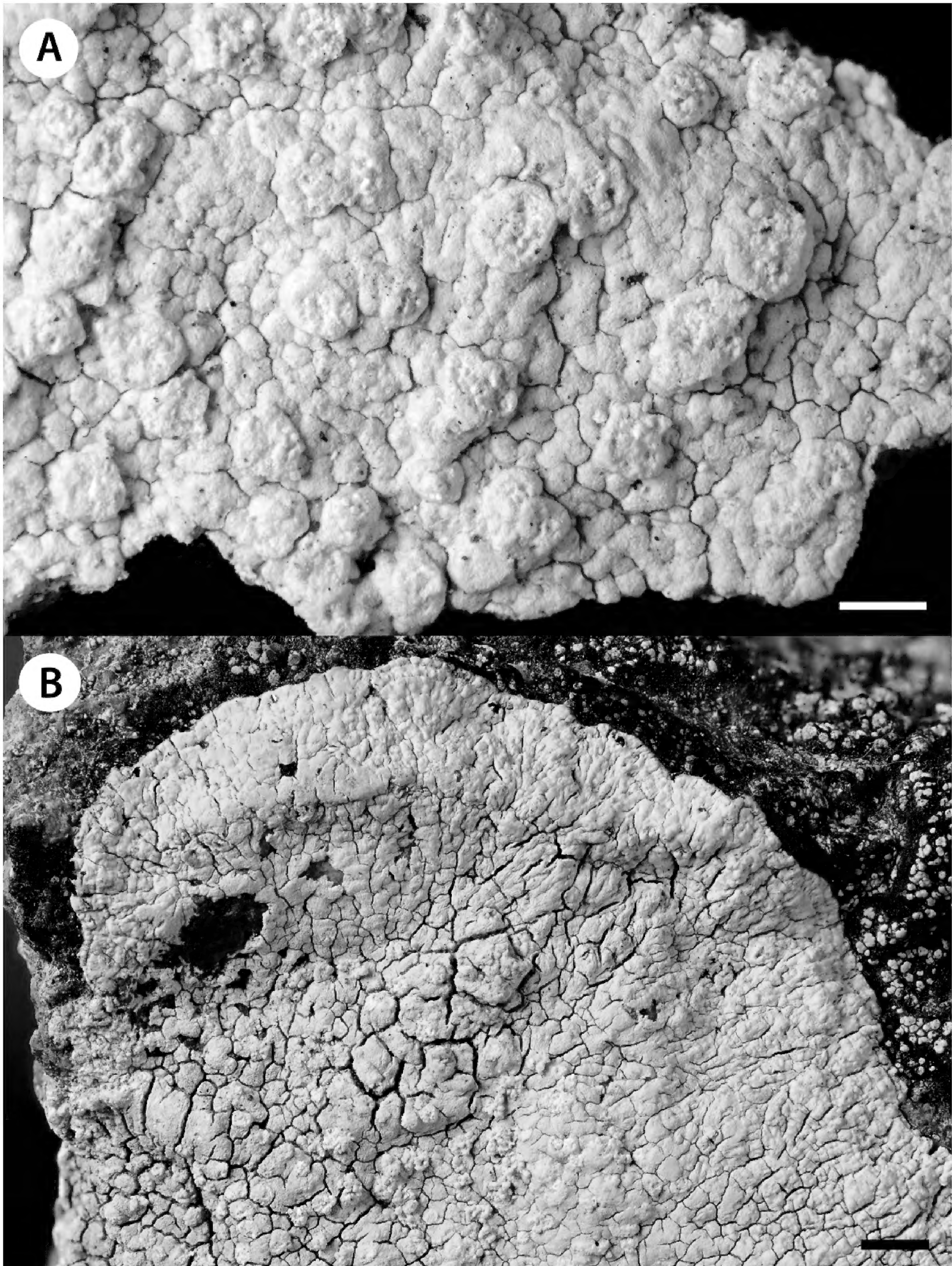


Figure 1. *Varicellaria lactea* from Alaska. A, part of Tønsberg 42724b (BG). B, part of Tønsberg 43909 (BG). Scales = 1 mm in A; 2 mm in B. Photos by E. Timdal 2017.

Characterization of material from Scandinavia. – Thallus usually grayish to creamy white, matt or sometimes, along the margin, glossy, rather smooth to minutely warty, especially towards thallus center (distinctly warty in e.g. *Tønsberg* 9250), rimose-cracked; margin sometimes indistinctly zoned; areoles flat to slightly convex, more or less angular to rounded, mostly up to 1 mm wide, when larger usually in the process of forming cracks. Soralia irregularly shaped, diffuse and often efflorescent and up to 3 mm wide, or circular and surrounded laterally by an esorediate, thalline collar and up to 1.3 mm wide; the first diaspores often smooth, club-shaped to globose and resembling isidia, up to 0.4(–1.0) mm tall and 0.3(–0.9) mm wide, subsequent diaspores mostly irregularly rounded consoredia to 400 µm in diameter or more. (This type of soralia development where diaspores resembling isidia are produced first, and then soredia and/or consoredia, is described by Chambers et al. (2009) for *Lepra excludens* (Nyl.) Hafellner (as *Pertusaria excludens* Nyl.) and for *P. lactescens* Mudd.) Apothecia very rare, resembling soralia (Chambers et al. 2009), not seen. Medulla distinct, white. Photobiont layer distinct, just beneath the thallus surface. Prothallus white and of projecting bundles of hyphae at the thallus edge, or not evident. Photobiont green, coccoid, to 13 µm diameter.

In the literature consulted (e.g., Chambers et al. 2009, Erichsen 1936, Foucard 2001, Poelt 1969, Wirth et al. 2013), there is no information about the size of the thallus of *Varicellaria lactea*. In material of the species in BG there are specimens up to 14 cm in diameter (*Tønsberg* 7094 comprising only a part of the original specimen since the thallus margin is lacking) and up to 2 mm thick when measured through soralia (*Tønsberg* 36930). Although accurate field measurements of the diameter of whole thalli may be lacking, observations of the species in the field in Norway indicate that *V. lactea* may reach several decimeters in diameter (*Tønsberg*, pers. observ.).

Chemistry. – The chemical constituents are lecanoric and variolaric acids; the latter substance sometimes apparently absent (at least not detected by TLC). Esorediate parts of the upper surface C+ yellow (variolaric acid), medulla and the soralia C+ blood red (lecanoric acid). When C is applied to the thallus surface, a reticulate pattern of blood-red lines sometimes appeared reflecting the positive reaction with C of the upper medulla/photobiont layer evident through the rimose-cracks.

Characterization of the material from Alaska. – The specimens from Alaska agree with the material from Scandinavia characterized above. The specimen from Lake Clark is six centimeters in diameter, has parts of the thallus margin intact (Fig. 1B) and the surface is minutely warty, whereas in the specimen from Katmai (Fig. 1A) the thallus margin is not evident and the surface is not warty. The specimens are both sterile and their chemical constituents are lecanoric and variolaric acids.

In the genus *Varicellaria*, the creamy white thallus surface, the presence of soredia, the production of lecanoric and variolaric acids, and the saxicolous habit make *V. lactea* a distinctive species (Schmitt et al. 2012). The specimen from Katmai (*Tønsberg* 42724b) was closely associated (occurred side by side on the same rock wall) with a morphologically similar lichen (*Tønsberg* 42724a) which was identified as *Lepra excludens* based on morphology and its chemical constituents norstictic and connorstictic acids; the latter substance in trace amounts. Interestingly these two thalli (see Figs 1A and 2, respectively) could hardly be distinguished based on morphology only.

Distribution and ecology. – In Alaska *Varicellaria lactea* was found on rock walls on lakeshores at altitudes of 10–15 m (Katmai) and 450 m (Lake Clark). The species was recently (McMullin et al. 2017) reported as new to North America from British Columbia and Québec in Canada. The species is here reported as new to the U.S.A. from Alaska. Outside North America *V. lactea* occurs in Asia and Europe (Chambers et al. 2009, as *Pertusaria lactea* (L.) Arnold).

Specimens examined. – **U.S.A. ALASKA. LAKE AND PENINSULA BOROUGH:** Katmai National Park and Preserve, Naknek Lake, NNE of Brooks Camp, 58.56320°N 155.75915°W, alt. 10–15 m, saxicolous in shallow cavity in lakeshore cliff, 26.vii.2013, *T. Tønsberg* 42724b (ALA, BG); Lake Clark National Park, Portage Lake, bay on SW side, 60.5015°N 153.8776°W, alt. 450 m, saxicolous on overhanging rock wall on lake shore with cliffs and *Picea* forest, 12.vii.2014, *T. Tønsberg* 43909 (ALA, BG, OSC).



Figure 2. *Lepra excludens*, part of *T. Tønsberg* 42724a (BG). Scale = 1 mm. Photo E. Timdal 2017.

Selected comparative material examined (all BG). – **NORWAY. ROGALAND.** UTSIRA: SSW of Utsira fyr [light-house], 59.30549°N 4.87021°E, alt. 57 m, saxicolous on upper face of low boulder in coastal heath, 4.x.2017, *T. Tønsberg* 47534. SAUDA: ESE of Gjuvastøl, S of Storelva, along path to old zinc mines, 59°39.2'N 6°28.2'E [59.33333°N 6.47000°E], alt. 175 m, on N-facing rock wall in gorge, 1.viii.1999, *T. Tønsberg* 27358. **SØR-TRØNDELAG.** MELHUS: Lundadalen, 3–4 km E of brook Skarvbekken, alt. 170 m, 09.vii.1982, *T. Tønsberg* 7094. **NORDLAND.** LEIRFJORD: Leinesstranda, alt. 30 m, on shaded, N-facing rock, 23.vii.1985, *T. Tønsberg* 9250. MELØY: S of Glomfjorden, along Reindalselva, W side, 66°47.95'N 13°45.80'E [66.79916°N 13.76333°E], alt. 160 m, saxicolous on N-facing rock wall on riverbank, exposed to spray from waterfall, 19.vii.2006, *T. Tønsberg* 36930. NESNA: Tomma, N of Husby, between Tomsvika and Kvernán, 66.24843°N 12.73897°E, alt. 29 m, saxicolous on boulder in coastal heath, 20.vi.2016, *T. Tønsberg* 46501.

Specimen of Lepra excludens examined. – **U.S.A. Alaska. Lake and Peninsula Borough:** Katmai National Park and Preserve, Naknek Lake, NNE of Brooks Camp, 58.56320°N 155.75915°W, alt. 10–15 m, saxicolous in shallow cavity in lakeshore cliff, 26.vii.2013, *T. Tønsberg* 42724a (ALA, BG).

ACKNOWLEDGEMENTS

Thanks are due to Bruce McCune, Oregon State University, for the invitation to do lichenological field work in Katmai and Lake Clark National Parks and Preserves in 2013 and 2014, and for comments on the manuscript; the National Park Service (NPS), Southwest Alaska Network, Anchorage, for funding; Amy Miller and James Walton (both NPS) for project coordination and for organizing and executing field logistics; the curator of UPS for loan of type material; Einar Timdal, University of Oslo, for the photos; Beate Helle, University of Bergen, for technical help; and James Lendemer, New York Botanical Garden, and Troy McMullin, Canadian Museum of Nature, for pointing out to me recently published papers, e.g. on *Varicellaria lactea* in North America and for valuable comments on the manuscript.

LITERATURE CITED

- Chambers, S.P., O.K. Gilbert, P.W. James, A. Aptroot and O.W. Purvis 2009. *Pertusaria* DC. (1805). In: Smith, C.W., A. Aptroot, B.J. Coppins, A. Fletcher, O.L. Gilbert, P.W. James and P.A. Wolseley (eds). *The Lichens of Great Britain and Ireland*. British Lichen Society, London. pp 673–687.
- Culberson, C.F. 1972. Improved conditions and new data for the identification of lichen products by a standardized thin-layer chromatographic method. *Journal of Chromatography* 72: 113–125.
- Culberson, C.F. and H. Kristinsson. 1970. A standardized method for the identification of lichen products. *Journal of Chromatography* 46: 85–93.
- Dibben, M.J. 1980. *The Chemosystematics of the Lichen Genus Pertusaria in North America North of Mexico*. Publications in Biology and Geology No. 5, Milwaukee Public Museum Press, Milwaukee. 162 pp.
- Erichsen, C.F.E. 1936. Pertusariaceae. In: *Rabenhorsts Kryptogamenflora von Deutschland, Österreich und der Schweiz*. Band IX, Abteilung 5/I. Akademische Verlagsgesellschaft, Leipzig. pp 321–728.
- Esslinger, T.L. 2016. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada, version 21. *Opuscula Philolichenum* 15: 136–390.
- Foucard, T. 2001. *Svenska Skorplavar*. Interpublishing, Stockholm. 392 pp.
- Lendemer, J.C. and R.C. Harris. 2017. Nomenclatural changes for North American members of the *Variolaria*-group necessitated by the recognition of *Lepra* (Pertusariales). *Bryologist* 120(2): 182–189.
- McMullin, R.T., J. Gagnon, F. Anderson, W.R. Buck, S.R. Clayden, B.C. Dorin, A. Fryday, J.G. Guccion, R.C. Harris, J. Hinds, C. Isabel, D. Ladd, E. Lay, J.C. Lendemer, J.R. Maloles, C. Roy and D.P. Waters. 2017. One hundred new provincial, national, and continental lichen and allied fungi records from parc national de la Gaspésie, Québec, Canada. *Northeastern Naturalist* 24(4): 446–466.
- Menlove, J.E. 1974. Thin-layer chromatography for the identification of lichen substances. *British Lichen Society Bulletin* 3: 3–5.
- Poelt, J. 1969. *Bestimmungsschlüssel Europäischer Flechten*. Verlag von J. Cramer, Lehre. 757 pp.
- Schmitt, I., J. Otte, S. Parmmen, A.D. Sadowska-Deś, R. Lücking and H.T. Lumbsch. 2012. A new circumscription of the genus *Varicellaria* (Pertusariales, Ascomycota). *MycKeys* 4: 23–36.
- Wirth, V., M. Hauck and M. Schultz. 2013. *Die Flechten Deutschlands*. Volume 2. pp 673–1244.

A Cumulative Checklist for the Lichen-Forming, Lichenicolous and Allied Fungi of the Continental United States and Canada, Version 22

THEODORE L. ESSLINGER¹

ABSTRACT. – Version 22 of the checklist of lichen-forming, lichenicolous and allied fungi occurring in North America north of Mexico is presented. It includes a total of 5,561 species in 755 genera, with an additional 41 subspecies, 44 varieties, and 3 forms. The total species number includes 615 lichenicolous fungi, 107 saprophytic fungi related to lichens or to lichenicolous fungi, and another 53 species of varying and/or uncertain biological status.

KEYWORDS. – Canada, floristics, lichens, nomenclature, United States.

INTRODUCTION

This checklist consists of cumulative updates to the most recently published North American checklist (Esslinger 2016). The same style and conventions for listings used there continue to be followed here. Within each genus the accepted names are listed first and are in boldface. Names considered to be synonyms are listed second and are presented in normal font only. Significant changes made since the last version (#21) are given in blue font. As before, the following symbols are used to indicate the lichenicolous fungi and other allied fungi: * = lichenicolous fungi (parasites on living lichens), + = saprophytic fungi related to either lichens or lichenicolous fungi, on various substrates, # = various fungi of uncertain status: e.g.: those which are questionably or weakly lichen-forming; or algicolous/saprophytic; or parasitic when young but saprophytic or lichen-forming when mature; or lichenicolous lichens.

The first North American (north of Mexico) lichen checklist produced by Mason Hale and Bill Culberson in 1956 (*Castanea* 21: 73-105) listed 2,280 species in 193 genera (their count), and included few or no lichenicolous or allied fungi. Almost forty years later, the first checklist version with which I was involved (Esslinger & Egan 1995) reported 3,580 lichen species and another 219 species of lichenicolous and allied fungi, all in 477 genera. The count for this current version (#22) is 5,561 total species in 755 genera, with an additional 41 subspecies, 44 varieties, and 3 forms. The total species number includes 615 lichenicolous fungi (*), 107 saprophytic fungi related to lichens or to lichenicolous fungi (+), and another 53 species of varying and/or uncertain biological status (#).

This list is updated at semi-regular intervals, usually about once every 12 to 18 months, as changes accumulate in the literature. I would appreciate being informed of any oversights or omissions, and although not all taxonomic or nomenclatural differences of opinion will be easily or immediately settled, any polite opinions that users would like to share will be welcomed and taken under consideration. Additions or changes appearing in this version of the checklist represent reports in the literature, and their presence here does not necessarily imply endorsement by the author. In addition to inviting comments or corrections, it would be very helpful if authors of publications containing additions to the North American lichen biota, or other taxonomic and nomenclatural changes that impact it, would provide me with copies. I owe thanks to the many colleagues who continue to provide suggested corrections and/or additions.

The first 20 versions of this checklist were published only online (Version #1 dated 1 December 1997 through Version #20 dated 19 April 2015). This version (Version #22, 29 January 2018) like the

¹THEODORE L. ESSLINGER – Department of Biological Sciences, #2715, P.O. Box 6050, North Dakota State University, Fargo, ND 58108-6050, U.S.A. – e-mail: Ted.Esslinger@ndsu.edu

previous one (#21) is being simultaneously published here in Opuscula Philolichenum and online at the usual site hosted at North Dakota State University: <http://www.ndsu.edu/pubweb/~esslinge/chcklst/chcklst7.htm>. The purpose of dual publication is to provide a standard formatted journal article that can be cited, to assure permanent archiving of each version, and to facilitate dissemination of the checklist to those outside of the lichenological community via indexing services such as Scopus. Although there are minor organizational differences between the introductory sections of this and the online edition, the bodies of the two editions are identical except for indenting.

CHECKLIST

ABROTHALLUS De Not.

- ***acetabuli** Diederich (Kocourkova et al. 2012)
- ***bertianus** De Not.
- ***bryoriarum** Hafellner
- ***caerulescens** Kotte (Diederich 2003)
- ***cetrariae** Kotte (Goward et al. 1996)
- ***cladoniae** R. Sant. & D. Hawksw.
- ***eriodermæ** Suija, Etayo & Pérez-Ortega (Suija et al. 2015)
- ***ertzii** Suija, & Pérez-Ortega (Suija et al. 2015)
- ***halei** Pérez-Ortega, Suija, D. Hawksw. & R. Sant. (Suija et al. 2011)
- ***hypotrachynæ** Etayo & Diederich (Lendemer & Knudsen 2008b)
- ***microspermus** Tul. (Cole & Hawksworth 2001)
- ***nephromatis** Suija, & Pérez-Ortega (Suija et al. 2015)
- ***parmeliarum** (Sommerf.) Arnold
- ***peyritschii** (Stein) Kotte
- ***pezizicola** Diederich & R. C. Harris (Diederich 2003)
- ***prodiens** (Harm.) Diederich & Hafellner
- ***secedens** Wedin & R. Sant. (Spribille et al. 2010)
- ***suecicus** (Kirschst.) Nordin (Diederich 2003)
- ***tulasnei** M. S. Cole & D. Hawksw. (Cole & Hawksworth 2001)
- ***usneae** Rabenh. (Cole & Hawksworth 2001)
- ***welwitschii** Mont. ex Tul.
- ***oxysporus** Tul. = *Phacopsis oxyspora*
- ***usneae** auct. non Rabenh. = *Lichenostigma maureri*

ABSCONDITELLA Vězda

- amabilis** T. Sprib. (Spribille et al. 2009)
- celata** Döbbeler & Poelt (Spribille et al. 2009)
- lignicola** Vězda & Pišút (Nash et al. 1998)
- sphagnorum** Vězda & Poelt
- trivialis** (Willey ex Tuck.) Vězda

ACANTHOTHECIS Clem.

- aurantiaca** (Müll. Arg.) Staiger & Kalb Syns.: *Graphina intertexta*, *Graphis intertexta* (Staiger 2002)
- floridana** Lendemer & R. C. Harris (Lendemer & Harris 2014a)
- floridensis** F. Seavey & J. Seavey (Seavey et al. 2017)
- fontana** Muscavitch & Lendemer (Muscavitch & Lendemer 2016)
- gracilis** Staiger & Kalb (Staiger & Kalb 1999)
- leucopepla** (Tuck.) E. Tripp & Lendemer Syns.: *Graphis leucopepla*, *Graphina abaphoides* (Tripp et al. 2010)
- leucoxanthoides** Lendemer (Lendemer & Harris 2014a)
- mosquitensis** (Tuck.) E. Tripp & Lendemer Syns.: *Graphis mosquitensis*, *Graphina subvirginalis* (Tripp et al. 2010)
- paucispora** Lendemer & R. C. Harris (Lendemer & Harris 2014a)
- peplophora** (M. Wirth & Hale) E. Tripp & Lendemer Syn.: *Graphina peplophora* (Tripp et al. 2010)
- poitaeoides** (M. Wirth & Hale) E. Tripp & Lendemer Syn.: *Graphis poitaeoides* (Tripp et al. 2010)

abaphoides (Nyl.) Staiger & Kalb (Staiger & Kalb 1999) = *A. leucopepla*
intertexta (Müll. Arg.) Staiger & Kalb = *A. aurantiaca*

ACAROCONIUM Kocourk. & D. Hawksw. (Kocourková & Hawksworth 2008)
***punctiforme** Kocourk. & D. Hawksw. (Kocourková & Hawksworth 2008)

ACAROSPORA A. Massal.

affinis K. Knudsen (Knudsen 2007a)
americana H. Magn. (Knudsen et al. 2011b)
asahinae H. Magn.
badiofusca (Nyl.) Th. Fr. Syn.: *Sarcogyne athroocarpa* (Knudsen & Kocourková 2013)
boulderensis H. Magn. (Knudsen et al. 2014b; McCune et al. 2014b)
brattiae K. Knudsen (Knudsen 2007a)
brodoana K. Knudsen, Kocourk. & M. Westb. (Knudsen et al. 2016)
brouardii B. de Lesd. (Knudsen 2007a, Knudsen et al. 2008a)
calcareo K. Knudsen (Knudsen 2007a)
canadensis H. Magn.
cervina A. Massal.
chrysops (Tuck.) H. Magn. (Knudsen et al. 2008a)
clauzadeana (Llimona) Casares & Hafellner Syn.: *Biatorella clauzadeana*
coloradiana H. Magn.
complanata H. Magn.
contigua H. Magn. (Brodo et al. 2001, Knudsen 2007a)
elevata H. Magn.
epilutescens Zahlbr. (Knudsen 2005a)
erythrophora H. Magn. (Knudsen 2007a)
fuscata (Schrader) Arnold
fuscescens H. Magn.
glaucocarpa (Ach.) Körber
heufferiana Körber
hilaris (Dufour) Hue
impressula Th. Fr.
#**interjecta** H. Magn.
janae K. Knudsen (Lumbsch et al. 2011)
macCarthyi K. Knudsen & Kocourk. (Knudsen & Kocourková 2015)
macrospora (Hepp) A. Massal. ex Bagl.
moenium (Vainio) Räsänen (Nordin et al. 2009)
molybdina (Wahlenb.) Trevisan
#**nashii** K. Knudsen (Knudsen 2011a)
nevadensis H. Magn.
nicolai B. de Lesd. (Knudsen & Morse 2009)
nodulosa (Dufour) Hue var. **nodulosa**
novomexicana H. Magn. (Knudsen 2007a)
obnubila H. Magn.
obpallens (Nyl. ex Hasse) Zahlbr. Syn.: *Lecanora obpallens*
oligospora (Nyl.) Arnold
orcuttii K. Knudsen (Knudsen 2010 [2011])
oreophila K. Knudsen (Knudsen 2007a)
peliscypha Th. Fr.
piedmontensis K. Knudsen (Knudsen et al. 2011b)
robiniae K. Knudsen (Knudsen 2007a)
rosulata (Th. Fr.) H. Magn. (Knudsen et al. 2010)
rouxii K. Knudsen, Elix & Reeb (Knudsen 2007a, Knudsen et al. 2008a)
rugulosa Körber
saepincola H. Magn.
schleicheri (Ach.) A. Massal.

scotica Hue
sinopica (Wahlenb.) Körber
socialis H. Magn.
sparsa H. Magn.
sphaerosperma R. C. Harris & K. Knudsen (Knudsen et al. 2011b)
#stapfiana (Müll. Arg.) Hue
strigata (Nyl.) Jatta
succedens H. Magn.
superfusca H. Magn. (Lendemer & Knudsen 2011)
thamnina (Tuck.) Herre
thelococcoides (Nyl.) Zahlbr. Syns.: *Lecanora thelococcoides*, *L. pleiospora*, *L. pleistospora*
toensbergii K. Knudsen & Kocourk. (Knudsen & Kocourková 2017)
tongletii Hue
tuckerae K. Knudsen (Knudsen 2007a)
veronensis A. Massal.
aeruginosa Hasse = *Caeruleum heppii*
albida H. Magn. = *A. epilutescens*
albomarginata (Herre) G. Salisb. = *A. elevata* (Knudsen 2007a)
amabilis H. Magn. = *A. socialis* (Knudsen 2007a)
amphibola Wedd. = *Myriospora smaragdula*
amphibola sensu auct. = *Myriospora rhagadiza*
applanata H. Magn. = *A. veronensis* (Knudsen 2007a)
**arenacea* H. Magn. = *Polysporina arenacea* (Knudsen & Kocourková 2008a)
arenosa Herre = *Sarcogyne arenosa*
asperata H. Magn. = *A. boulderensis* (Kocourková et al. 2014b)
bella (Nyl.) Jatta = *A. rhabarbarina* (Knudsen et al. 2008a), but a misidentification for North America (Knudsen & Kocourková 2012a)
bullata Anzi = misidentification for North America (Knudsen et al. 2010)
caesiofusca (Müll. Arg.) H. Magn. = *A. nicolai*
californica Zahlbr. = *A. badiofusca* (Knudsen 2007a)
carnegiei Zahlbr. = *A. obpallens* (Knudsen 2005b)
cartilaginea H. Magn. = *A. fuscata*
chlorophana (Wahlenb.) A. Massal. = *Pleopsidium chlorophanum*
cineracea (Nyl.) Wedd. = misidentification for North America
cinereoalba (Fink) H. Magn. = *A. americana* (Knudsen et al. 2011b)
citrina (Taylor) Zahlbr. = misidentification for North America (Knudsen & Flakus 2016)
desolata H. Magn. = *Sarcogyne desolata*
dispersa H. Magn. = *Trimmatothelopsis dispersa*
dissipata H. Magn. = *A. schleicheri*
evoluta H. Magn. = *A. socialis* (Knudsen 2007a)
flava (Bellardi) Ach. = *Pleopsidium flavum*
gallica H. Magn. = *A. janae* for North American reports (Knudsen et al. 2011b)
geogena H. Magn. = *A. nodulosa* (Knudsen 2007a)
geophila H. Magn. = *A. nodulosa*
glebosa (Flotow) Körber = *A. oligospora*
hassei Herre (Knudsen 2007a) = *Myriospora hassei* (Arcadia & Knudsen 2012)
heppii (Nägeli ex Hepp) Nägeli ex Körber = *Caeruleum heppii*
immersa Fink = *Caeruleum immersum*
incertula H. Magn. = *A. novomexicana* (Knudsen 2007a)
instrata H. Magn. = *A. obpallens* (Lendemer et al. 2008c)
intercedens H. Magn. = *A. socialis* (Knudsen & Lendemer 2005b)
interposita H. Magn. = *A. thamnina* (Knudsen 2007a)
interspersa H. Magn. = *A. succedens* (Knudsen 2011a)
lapponica (Ach. ex Schaerer) Th. Fr. = *Sarcogyne lapponica* (see note there)
**lapponica* auct. N.A. = *Polysporina subfuscescens*
montana H. Magn. = *A. rugulosa*

nigromarginata B. de Lesd. = *A. strigata* (Knudsen 2007a)
 nitida H. Magn. (Weber & Wittman 2000) = *A. elevata* for North American records (Knudsen 2007a)
 nodulosa (Dufour) Hue var. *reagens* Zahlbr. = *A. nodulosa*
 obscura H. Magn. = *A. veronensis* (Knudsen 2007a)
 ocellata H. Magn. = *A. schleicheri*
 oxytona (Ach.) A. Massal. = *Pleopsidium flavum*
 particularis H. Magn. = *Myriospora hassei* (Knudsen 2007a, Arcadia & Knudsen 2012)
 peltastica Zahlbr. = *A. strigata* (Knudsen & Lendemer 2005b)
 peltata Hasse = *A. strigata* (Knudsen 2007a)
 pleiospora (Nyl.) Hasse. = *A. thelococcoides* (Lendemer 2004a)
 pleistospora (Nyl.) Hasse = *A. thelococcoides* (Lendemer 2004a)
 pyrenopsoides H. Magn. = misidentification for North America (Knudsen & Kocourková 2010a)
 radicata H. Magn. = *A. socialis* (Knudsen & Lendemer 2005b)
 reagens Zahlbr. = *A. nodulosa* (Knudsen 2007a)
 rhubarbarina Hue (Knudsen et al. 2008a) = misidentification for North America (Knudsen & Kocourková 2012a)
 rhagadiosa (Ach.) Th. Fr. = *Glypholecia scabra*
 rimulosa H. Magn. = *A. socialis* (Knudsen 2007a)
 rubicunda H. Magn. = *A. heufleriana* (Knudsen 2007a)
 rufescens (Ach.) Bausch = *Myriospora smaragdula*
 saxicola Fink = *Glypholecia scabra*
 scabra (Pers.) Th. Fr. = *Glypholecia scabra*
 scabrida Hedl. ex H. Magn. = *Myriospora scabrida*
 smaragdula (Wahlenb.) A. Massal. = *Myriospora smaragdula*
 smaragdula var. *lesdainii* (Harm. ex A.L. Smith) H. Magn. (Knudsen 2004a) = *Myriospora smaragdula*
 squamulosa (Schrader) Trevisan = *A. macrospora* (Knudsen 2007a)
 squamulosa sensu Th. Fr. = *A. macrospora*
 stenospora (Stizenb.) Hue = *Pleopsidium flavum*
 subalbida H. Magn. = *A. socialis* (Knudsen & Lendemer 2005b)
 subcontigua H. Magn. = *A. schleicheri*
 *subfuscescens (Nyl.) H. Magn. = *Polysporina subfuscescens*
 subrufula (Nyl.) H. Olivier (McCune et al. 1997) Report based on a specimen of *Myriospora smaragdula* (Knudsen 2007b)
 superfusa H. Magn. = *A. americana* (Lendemer & Knudsen 2011, Knudsen et al. 2011b)
 tenebrica H. Magn. = *A. veronensis* (Knudsen 2007a)
 terricola H. Magn. = *Trimmatothelopsis terricola* (Knudsen & Lendemer 2016)
 texana H. Magn. = *Pleopsidium chlorophanum*
 thermophila Herre = *A. thamnina* (Knudsen 2007a)
 tucsonensis H. Magn. = *A. obpallens* (Knudsen 2007a)
 umbilicata Bagl. (Harris & Ladd 2005) North American records are *Acarospora nicolai* (Knudsen et al. 2011b)
 utahensis H. Magn. = *A. strigata* (Knudsen & Lendemer 2005b)
 variegata H. Magn. = *A. tongleti*
 washingtonensis H. Magn. = *A. elevata* (Knudsen 2007a)
 weldensis H. Magn. = *Pleopsidium chlorophanum*
 xanthophana (Nyl.) Jatta = misidentification for North America (Knudsen 2008a)

ACOLIUM (Ach.) Gray (Prieto & Wedin 2017)

chloroconium Tuck. Syn.: *Cyphelium chloroconium*
inquinans (Sm.) A. Massal. Syn.: *Cyphelium inquinans*
karelicum (Vainio) M. Prieto & Wedin Syn.: *Cyphelium karelicum*
 ***sessile** (Pers.) Arnold Syn.: *Calicium sessile*, *Cyphelium sessile*
carolinianum Tuck. = *Calicium carolinianum*
tympanellum (Ach.) Gray = *Acolium inquinans*

ACREMONIUM Link

***strictum** W. Gams (Spribille et al. 2010)

ACROCORDIA A. Massal.\

cavata (Ach.) R. C. Harris Syn.: *Arthopyrenia cavata*

conoidea (Fr.) Körber Syn.: *Arthopyrenia conoidea*

gemmata (Ach.) A. Massal. Syn.: *Arthopyrenia gemmata*, *A. alba*, *A. sphaeroides* (Lendemer & Harris 2014b)

megalospora (Fink) R. C. Harris Syn.: *Arthopyrenia macrospora*, *A. finkii*, *Pyrenula megalospora*

ACROSCYPHUS Lév.

sphaerophoroides Lév.

ACTINOGYRA Schol. = **UMBILICARIA**

muhlenbergii (Ach.) Schol. = *Umbilicaria muhlenbergii*

muhlenbergii var. **alpina** (Tuck.) Llano = *Umbilicaria muhlenbergii*

polyrrhiza (L.) Schol. = *Umbilicaria polyrrhiza*

ADELOCOCCUS Theissen & Sydow

***alpestris** (Zopf) Theissen & Sydow

ADELOLECIA Hertel & Hafellner

kolaensis (Nyl.) Hertel & Rambold Syn.: *Lecidea conferenda*

pilati (Hepp) Hertel & Hafellner Syn.: *Lecidea pilati*, *L. lyngeana*, *L. subauriculata* Lynge non B. de Lesd.

sonorae Hertel (Hertel 2004)

AGONIMIA Zahlbr.

allobata (Stizenb.) P. James (Fryday 2001)

gelatinosa (Ach.) M. Brand & Diederich Syn.: *Polyblastia gelatinosa* (Sérusiaux et al. 1999)

opuntiella (Buschardt & Poelt) Vězda (Lendemer 2004c)

tristicula (Nyl.) Zahlbr. Syn.: *Polyblastia tristicula*

vouauxii (B. de Lesd.) M. Brand & Diederich (Freebury 2014)

AGRESTIA J. W. Thomson = **CIRCINARIA**

cyphellata J. W. Thomson = *Circinaria hispida*

hispida (Mereschk.) Hale & W. L. Culb. = *Circinaria hispida*

AGYRIUM Fr.

+rufum (Pers.) Fr.

AGYROPHORA (Nyl.) Nyl. = **UMBILICARIA**

leiocarpa (DC.) Gyelnik = *Umbilicaria leiocarpa*

lyngei (Schol.) Llano = *Umbilicaria lyngei*

rigida (Du Rietz) Llano = *Umbilicaria rigida*

scholanderi Llano = *Umbilicaria scholanderi*

AHLESIA Fuckel = **THELOCARPON**

sphaerospora (H. Magn.) G. Salisb. = *Thelocarpon sphaerosporum*

AHTIANA Goward

aurescens (Tuck.) A. Thell & Randlane Syn.: *Cetraria aurescens*, *Tuckermannopsis aurescens* (Thell et al. 1995)

pallidula (Tuck. ex Riddle) Goward & A. Thell Syn.: *Cetraria pallidula*, *Tuckermannopsis pallidula* (Thell et al. 1995)

sphaerosporella (Müll. Arg.) Goward Syn.: *Parmelia sphaerosporella*

AINOA Lumbsch & I. Schmitt (Lumbsch et al. 2001)

bella Brodo & Lendemer (Brodo & Lendemer 2015)
mooreana (Carroll) Lumbsch & I. Schmitt Misidentification for North America (Brodo & Lendemer 2015)

ALBEMARLEA Lendemer & R. C. Harris (Lendemer et al. 2016c)
pamlicoensis Lendemer & R. C. Harris

ALECTORIA Ach.

fallacina Motyka
imshaugii Brodo & D. Hawksw.
lata (Taylor) Lindsay
ochroleuca (Hoffm.) A. Massal.
sarmentosa (Ach.) Ach.
sorediosa (Lång ex Räsänen) McMullin & Lendemer (McMullin et al. 2016)
vancouverensis (Gyelnik) Gyelnik ex Brodo & D. Hawksw.
vexillifera (Nyl.) Stizenb. (McMullin et al. 2016)
abbreviata (Müll. Arg.) R. Howe = *Nodobryoria abbreviata*
achariana Gyelnik = *Bryoria pseudofuscescens*
altaica (Gyelnik) Räsänen = *Bryoria nadvornikiana*
ambigua Motyka = *Bryoria ambigua*
americana Motyka = *Bryoria americana*
bicolor (Ehrh.) Nyl. = *Bryoria bicolor*
boryana Delise = *Gowardia nigricans*
californica (Tuck.) G. Merr. = *Kaernefeltia californica*
cana (Ach.) Leighton = *Bryoria pikei*
canadensis Motyka = *Bryoria trichodes* subsp. *trichodes*
capillaris (Ach.) Crombie = *Bryoria capillaris*, but N.A. records are *B. pikei* (Velmala et al. 2014)
cervinula Motyka = *Bryoria cervinula*
cetrariza Nyl. = *Kaernefeltia californica*
chalybeiformis (L.) Gray = *Bryoria fuscescens*
corneliae Gyelnik = *Bryoria fremontii*
delicata Motyka = a nomen nudum = *Bryoria trichodes* subsp. *trichodes*
divergens (Ach.) Nyl. = *Bryocaulon divergens*
fremontii Tuck. = *Bryoria fremontii*
fuscescens Gyelnik = *Bryoria fuscescens*
gowardii Lumbsch (Lumbsch & Huhndorf 2010) = *Gowardia arctica*
glabra Motyka = *Bryoria glabra*
haynaldii Gyelnik = misidentification for North America
implexa (Hoffm.) Nyl. = *Bryoria implexa*, a European species; N. A. records are *B. kockiana*
irvingii Llano = *Bryoria nitidula*
jubata (L.) Ach. Commonly confused and misused name applied to various pendent species of *Bryoria* (Brodo & Hawksworth 1977)
lanea auct. non (Hoffm.) Vainio = *Bryoria nitidula*
lanestris (Ach.) Gyelnik = *Bryoria fuscescens* (Velmala et al. 2014)
luteola Mont. = *A. sarmentosa*
minuscula (Nyl. ex Arnold) Degel. = *Pseudephebe minuscula*
nadvornikiana Gyelnik = *Bryoria nadvornikiana*
nana Motyka = a nomen nudum = *Bryoria simplicior*
nidulifera Norrlin = *Bryoria furcellata*
nigricans (Ach.) Nyl. = *Gowardia nigricans*
nitidula (Th. Fr.) Vainio = *Bryoria nitidula*
norstictica Motyka = a nomen nudum = *Bryoria pseudofuscescens*
oregana Tuck. = *Nodobryoria oregana*
positiva (Gyelnik) Motyka = *Bryoria fuscescens*
pseudofuscescens Gyelnik = *Bryoria pseudofuscescens*
pubescens (L.) R. Howe = *Pseudephebe pubescens*

sarmentosa subsp. vexillifera (Nyl.) D. Hawksw. = *A. vexillifera* (McMullin et al. 2016)
 setacea (Ach.) Motyka = *Bryoria pikei* for North American records
 simplicior (Vainio) Lynge = *Bryoria simplicior*
 stigmata Bystrek = *A. sarmentosa*
 subcana (Nyl. ex Stizenb.) Gyelnik = *Bryoria fuscescens* (Velmala et al. 2014)
 subdivergens E. Dahl = *Nodobryoria subdivergens*
 subsarmentosa Stirton = *A. sarmentosa*
 subtilis Motyka = a nomen nudum = *Bryoria pseudofuscescens*
 tenerrima Motyka = *Bryoria fremontii*
 tenuis E. Dahl = *Bryoria tenuis*
 thrausta Ach. = *Ramalina thrausta*
 tortuosa G. Merr. = *Bryoria fremontii*
 virens auct. = *Bryoria fremontii* for North American records

ALLANTOPARMELIA (Vainio) Essl.

almquistii (Vainio) Essl. Syn.: *Parmelia almquistii*
alpicola (Th. Fr.) Essl. Syn.: *Parmelia alpicola*
sibirica (Zahlbr.) Essl. (Spribille et al. 2009a)

ALLARTHONIA (Nyl.) Zahlbr.

caesia Flotow = *Chrysothrix caesia*

ALLOCALICIUM M. Prieto & Wedin (Prieto & Wedin 2017)

adaequatum (Nyl.) M. Prieto & Wedin Syn.: *Calicium adaequatum*, *C. hemisphaericum*

ALLOCETRARIA Kurokawa & Lai

madreporiformis (Ach.) Kärnefelt & A. Thell Syns.: *Dactylina madreporiformis*, *Dufourea madreporiformis* (Kärnefelt & Thell 1996)
stracheyi (Bab.) Kurok. & M. J. Lai (Thell et al. 2009)
 cucullata (Bellardi) Randlane & Saag = *Flavocetraria cucullata*
 nivalis (L.) Randlane & Saag = *Flavocetraria nivalis*
 oakesiana (Tuck.) Randlane & A. Thell = *Usnocetraria oakesiana*

ALYXORIA Ach. (Ertz & Tehler 2011)

bicolor (R. C. Harris & Lendemer) Ertz & Tehler (Ertz & Tehler 2011) Syn.: *Opegrapha bicolor*
mougeotii (A. Massal.) Ertz, Frisch & G. Thor Syn.: *Opegrapha mougeotii* (Frisch et al. 2014)
ochrocheila (Nyl.) Ertz & Tehler (Ertz & Tehler 2011) Syn.: *Opegrapha ochrocheila*
varia (Pers.) Ertz & Tehler (Ertz & Tehler 2011) Syns.: *Opegrapha diaphora*, *O. varia*

AMANDINEA M. Choisy ex Scheid. & H. Mayrhofer

***adjuncta** (Th. Fr.) Hafellner Syn.: *Buellia adjuncta* (Hafellner 2004b)
cacuminum (Th. Fr.) H. Mayrhofer & Sheard Syn.: *Rinodina cacuminum* (Mayrhofer & Sheard 2002)
coniops (Wahlenb.) M. Choisy ex Scheid. & H. Mayrhofer Syn.: *Buellia coniops*
dakotensis (H. Magn.) P. May & Sheard Syns.: *Rinodina dakotensis*, *R. finkii*, *R. inaequalis*, *R. pennsylvanica*, *R. pyriniformis*, *R. subplumbea*, *R. subpyriniformis*. (Sheard & May 1997)
efflorescens (Müll. Arg.) Marbach (Marbach 2000)
endachroa (Malme) Marbach (Lücking et al. 2011bb)
langloisii Imshaug ex Marbach (Marbach 2000) Syn.: *Buellia langloisii*
leucomela (Imshaug) P. May & Sheard Syns.: *Buellia leucoemela* (Sheard & May 1997)
lignicola Tønsberg & Nordin (Tønsberg et al. 2012)
milliaria (Tuck.) P. May & Sheard Syn.: *Rinodina milliaria* (Sheard & May 1997)
polyspora (Willey) E. Lay & P. May Syn.: *Buellia polyspora*, *Buellia punctata* var. *polyspora* (Sheard & May 1997)
punctata (Hoffm.) Coppins & Scheid. Syn.: *Buellia punctata*, *B. myriocarpa*
subduplicata (Vainio) Marbach (Marbach 2000)
submontana Marbach (Marbach 2000)

insperata (Nyl.) H. Mayrhofer & Sheard (Lendemer et al. 2008c) = *Orcularia insperata* (Kalb & Giralt 2012)
placodiomorpha (Vainio) Marbach (Marbach 2000) = *Orcularia placodiomorpha* (Kalb & Giralt 2012)
turgescens (Nyl.) Marbach (Marbach 2000) = *Buellia badia* (Bungartz & Nash 2004c)

AMELIELLA Fryday & Coppins (Fryday & Coppins 2008)
andreaeicola Fryday & Coppins

AMEROCONIUM U. Braun & Zhurb.
***cladoniae** U. Braun & Zhurb. (Zhurbenko & Braun 2013)

AMPHILOMA Nyl.
lanuginosum (Hoffm.) Nyl. = *Lepraria membranaceum*

AMPHISPHERIA Ces. & De Not.
+bufonia (Berk. & Broome) Ces. & De Not. (Perlmutter et al. 2017)

AMPLIOTREMA Kalb ex Kalb
auratum (Tuck.) Kalb ex Kalb (Seavey et al. 2014)

AMYGDALARIA Norman
consentiens (Nyl.) Hertel, Brodo & Mas. Inoue
continua Brodo & Hertel
elegantior (H. Magn.) Hertel & Brodo Syns.: *Huilia elegantior*, *Lecidea elegantior*
haidensis Brodo & Hertel
panaeola (Ach.) Hertel & Brodo Syns.: *Lecidea panaeola*, *Huilia panaeola*
pelobotryon (Wahlenb.) Norman Syns.: *Lecanora pelobotrya*, *Aspicilia pelobotrya*, *Lecidea pelobotrya*, L. "pelobotrion"
subdissentiens (Nyl.) Mas. Inoue & Brodo

ANAMYLOPSORA Timdal
pulcherrima (Vainio) Timdal Syns.: *Lecidea pulcherrima*, *Psora pulcherrima*

ANAPTYCHIA Körber
bryorum Poelt
crinalis (Schaerer) Vězda (Esslinger 2007)
elbursiana (Szatala) Poelt (Esslinger 2002a) Syn.: *Physconia thomsonii*
palmulata (Michaux) Vainio
ulothricoides (Vainio) Vainio
appalachensis Kurok. = *Heterodermia appalachensis*
aquila (Ach.) A. Massal. North American records = *A. palmulata*
boryi (Feé) A. Massal. = *Heterodermia boryi*
casarettiana A. Massal. = *Heterodermia casarettiana*
chondroidea (W. A. Weber & D. D. Awasthi) Kurok. = *Heterodermia chondroidea*
ciliaris (L.) Körber = misidentification for North America
comosa (Eschw.) A. Massal. North American records = *Heterodermia galactophylla*
corallophora (Taylor) Lynge = *Heterodermia crocea* (for North American records)
dendritica (Pers.) Vainio = *Heterodermia dendritica*
diademata (Taylor) Kurok. = *Heterodermia diademata*
domingensis (Ach.) A. Massal. = *Heterodermia albicans*
echinata (Taylor) Kurok. = *Heterodermia echinata*
erinacea (Ach.) Trevisan = *Heterodermia erinacea*
galactophylla (Tuck.) Trevisan = *Heterodermia galactophylla*
granulifera (Ach.) A. Massal. = *Heterodermia granulifera*
heterochroa Vainio = *Heterodermia obscurata*
hypoleuca (Muhl.) A. Massal. = *Heterodermia hypoleuca*

hypoleuca (Muhl.) A. Massal. var. colorata Zahlbr. = *Heterodermia obscurata*
 isidiza Kurok. (Yoshimura & Sharp 1973) = *A. isidiata* Tomin, but a misidentification for North America (Esslinger 2007)
 kaspica Gyelnik = *A. setifera*, but North American reports are *A. crinalis*
 leucomela (L.) A. Massal. = *Heterodermia leucomela*
 "leucomelaena" auct. = *Heterodermia leucomela*
 major (Nyl.) Vainio = misidentification for North America
 neoleucomelaena Kurok. = *Heterodermia boryi*
 obscurata (Nyl.) Vainio = *Heterodermia obscurata*
 "palmatula" auct. = *A. palmulata*
 pseudospeciosa Kurok. = *Heterodermia pseudospeciosa*
 pseudospeciosa Kurok. var. tremulans (Müll. Arg.) Kurok. = *Heterodermia speciosa*
 ravenelii (Tuck.) Zahlbr. = *Heterodermia albicans*
 setifera Räsänen North American reports are *A. crinalis*
 sorediifera (Müll. Arg.) Du Rietz & Lynge = *Heterodermia obscurata*
 speciosa (Wulfen) A. Massal. = *Heterodermia speciosa*
 squamulosa Degel. = *Heterodermia squamulosa*
 stippaea (Ach.) Nád. = *A. bryorum*
 tropica Kurok. = *Heterodermia tropica*
 wrightii (Tuck.) Zahlbr. North American report (Tuckerman 1882) is *Heterodermia diademata* (Esslinger & Tucker 2009)

ANDREIOMYCES Hodkinson & Lendemer (Hodkinson & Lendemer 2013)

morozianus (Lendemer) Hodkinson & Lendemer Syn.: *Lepraria morozianus*

ANEMA Nyl. ex Forssell

progidulum (Nyl.) Henssen (Schultz 2002a)
 dodgei Herre = *Heppia despreauxii* (Schultz 2007b)
 jensejensis H. Magn. = misidentification for North America

ANISOMERIDIUM (Müll. Arg.) M. Choisy

albisedum (Nyl.) R. C. Harris Syn.: *Ditrems albiseda*
ambiguum (Zahlbr.) R. C. Harris Syn.: *Arthopyrenia ambigua*, *Ditrems ambigua*
anisolobum (Müll. Arg.) Aptroot Syn.: *Arthopyrenia anisoloba*, *Ditrems anisoloba*
aureopunctatum R. C. Harris Syn.: *Ditrems macrospora* R. C. Harris non Makhija & Patwardhan (Harris 1995a)
biforme (Borrer) R. C. Harris Syn.: *Arthopyrenia biformis*, *A. parvula*, *A. conformis* auct. N. Am., *Ditrems biformis*, *Trimmatothela umbellulariae*
biformoides R. C. Harris (Harris 1995a)
carinthiacum (J. Steiner) R. C. Harris Syn.: *Arthopyrenia carinthiaca*, *A. dimidiata*, *Ditrems carinthiaca*
distans (Willey) R. C. Harris Syn.: *Arthopyrenia distans*, *Ditrems distans*
excaecariae (Müll. Arg.) R. C. Harris Syn.: *A. sanfordense*, *Arthopyrenia sanfordensis*, *Ditrems sanfordensis* (Harris 1995a)
finkii (R. C. Harris) R. C. Harris Syn.: *Ditrems finkii* (Harris 1995a)
griffinii R. C. Harris (Harris 1995a)
leucochlorum (Müll. Arg.) R. C. Harris Syn.: *Arthopyrenia leucochlora*, *Ditrems leucochlora*
 [**Ditrems macrospora** R. C. Harris]
phaeospermum R. C. Harris (Harris 1995a)
polypori (Ellis & Everh.) M. E. Barr Syn.: *Ditrems nyssigena*, *Arthopyrenia willeyana* (Barr et al. 1996)
quadricoccum R. C. Harris (Harris 1995a, Aptroot 1997)
quaternarium (R. C. Harris) R. C. Harris Syn.: *Ditrems quaternaria* (Harris 1995a)
subnexum (Nyl.) R. C. Harris (Lücking et al. 2011b)
subprostans (Nyl.) R. C. Harris Syn.: *Arthopyrenia subprostans*, *Ditrems subprostans*, *Pyrenula subprostans*.

tamarindi (Fée) R. C. Harris Syn.: *Ditrems tamarindi*.
terminatum (Nyl.) R. C. Harris Syn.: *Ditrems terminata*, *Pleurotrema anacardii*, *Arthopyrenia anacardii* (Harris 1995a)
tuckerae R. C. Harris Syn.: *Ditrems tuckerae*.
feeanum (Müll. Arg.) R. C. Harris = *A. anislobum*
juistense (Erichsen) R. C. Harris = *A. polypori*
nyssigenum (Ellis & Everh.) R. C. Harris = *A. polypori*
sanfordense (Zahlbr.) R. C. Harris = *Anisomeridium excaecariae*

ANOMALOBARIA B. Moncada & Lücking (Moncada et al. 2013) = **LOBARIA** (McCune et al. 2014b; Miadlikowska et al. 2014a)

anomala (Brodo & Ahti) B. Moncada & Lücking = *Lobaria anomala* (McCune et al. 2014b)
anthraspis (Ach.) B. Moncada & Lücking = *Lobaria anthraspis* (McCune et al. 2014b)

ANOMOMORPHA Nyl.

turbulenta (Nyl.) Hue Syn.: *Graphis turbulenta* (Staiger 2002)

ANTHRACOTHECIUM Hampe ex A. Massal.

australiensis (Müll. Arg.) Aptroot (Aptroot 2012)
pachycheilum (Tuck.) Zahlbr. Syn.: *Pyrenula pachycheila* (Tuckerman 1872)
prasinum (Eschw.) R. C. Harris
staurosporum (Tuck. ex Willey) Zahlbr.
canellae-albae (Fée) Müll. Arg. = *Sulcopyrenula canellae-albae*
corticatum Müll. Arg. = *Pyrenula confinis*
falsarium Zahlbr. = *Pyrenula schiffneri*
leucostomum (Ach.) Malme = *Pyrenula leucostoma*
libricola (Fée) Müll. Arg. = probable misidentification for North American
maculare Zahlbr. = *Pyrenula breutelii*
mucosum (Vainio) Zahlbr. = probable misidentification for North American
nanum (Zahlbr.) R. C. Harris = *A. australiensis*
ochraceoflavens (Nyl.) Zahlbr. = *Pyrenula ochraceoflavens*
ochraceoflavum (Nyl.) Müll. Arg. = *Pyrenula ochraceoflava*
pauciloculare Herre = identity uncertain
pyrenuloides (Mont.) Müll. Arg. = *Pyrenula pyrenuloides*
subglobosum Riddle = *Sulcopyrenula subglobosa*
thelomorphum (Tuck.) Zahlbr. = *Pyrenula thelomorpha*
varians R. C. Harris = *Pyrenula novemseptata*

ANZIA Stizenb.

americana Yoshim. & Sharp
colpodes (Ach.) Stizenb. Syn.: *Parmelia colpodes*
ornata (Zahlbr.) Asahina

ANZINA Scheid.

carneonivea (Anzi) Scheid. (Goward et al. 1996)
carneonivea var. **tetraspora** Scheid. (Spribille et al. 2010)

APATOPLACA Poelt & Hafellner = **CALOPLACA**

oblongula (H. Magn.) Poelt & Hafellner = *Caloplaca oblongula*

ARCTOCETRARIA Kärnefelt & A. Thell

andrejevii (Oxner) Kärnefelt & A. Thell Syn.: *Cetraria andrejevii*, *C. simmonsii*
nigricascens (Nyl.) Kärnefelt & A. Thell Syn.: *Cetraria nigricascens*, *C. elenkinii*, *C. sibirica*

ARCTOMIA Th. Fr.

delicatula Th. Fr.
interfixa (Nyl.) Vainio

ARCTOPARMELIA Hale

centrifuga (L.) Hale Syns.: *Parmelia centrifuga*, *P. aleuritica*, *Parmelia halseyana*, *Xanthoparmelia centrifuga*
incurva (Pers.) Hale Syns.: *Parmelia incurva*, *Xanthoparmelia incurva*
separata (Th. Fr.) Hale Syns.: *Parmelia separata*, *P. birulae* var. *grumosa*, *Xanthoparmelia separata*
subcentrifuga (Oxner) Hale Syns.: *Parmelia subcentrifuga*, *Xanthoparmelia subcentrifuga*
aleuritica (Nyl.) Hale = *A. centrifuga*

ARCTOPELTIS Poelt

thuleana Poelt

ARRHENIA Fr.

***peltigerina** (Peck) Redhead, Lutzoni, Moncalvo & Vilgalys Syn.: *Omphalina peltigerina* (Redhead et al. 2002)

ARTHONIA Ach.

***agelastica** R. C. Harris & Lendemer (Lendemer et al. 2016c)
albofuscescens Tuck.
+**albopulverea** Nyl. (Grube 2007)
albovirescens Nyl. Syn.: *Arthothelium albovirescens*
aleuromela Nyl.
***almquistii** Vainio (Zhurbenko 2013)
anglica Coppins (Hodkinson et al. 2009, Lendemer et al. 2009c)
***anjutii** S. Y. Kondr. & Alstrup (Kondratyuk 1996)
antillarum (Fée) Nyl. (Lücking et al. 2011b)
apatetica (A. Massal.) Th. Fr.
arthonioides (Ach.) A. L. Sm.
asteriscus Müll. Arg.
atomaria (Lynge) R. Kilius
atra (Pers.) A. Schneider (Ertz et al. 2009) Syn.: *Opegrapha atra*
atrata (Fée) Müll. Arg.
+**beccariana** (Bagl.) Stizenb. (Grube 2007)
***biatoricola** Ihlen & Owe-Larsson (Ihlen et al. 2004b)
calcarea (Turner ex Sm.) Ertz & Diederich (Ertz et al. 2009) Syn. : *Opegrapha calcarea*
caribea (Ach.) A. Massal.
+**caudata** Willey
***ceracea** Etayo & Breuss (Etayo & Breuss 1998)
cinereopruinosa Schaerer
cinnabarina (DC.) Wallr.
***circinata** Th. Fr. (Vilella & Sheehy 2015)
***clemens** (Tul.) Th. Fr.
***colombiana** Etayo (Lendemer & Harris 2012)
compensata Nyl. (Hansen & Dute 2005)
compensatula Nyl. (Seavey & Seavey 2012)
complanata Fée
conferta (Fée) Nyl.
***coronata** Etayo (Lendemer & Harris 2012)
cupressina Tuck.
cyrtodes Nyl. (Lendemer et al. 2009c)
+**cytisi** A. Massal.
dictyospora (Coppins & P. James) McCune (McCune 2017)
didyma Körber
diffusa Nyl.

diffusella Fink
***digitatae** Hafellner (Knudsen & Lendemer 2007)
***diploiciae** Calat. & Diederich (Grube 2007, Lendemer et al. 2009b)
dispersa (Schrader) Nyl.
dispersula Nyl.
eckfeldtii Müll. Arg.
***epicladonia** (Nyl.) Alstrup & Zhurb. (Zhurbenko & Alstrup 2004)
***epimela** (Almq.) I. M. Lamb (Goward et al. 1996)
***epiphyscia** Nyl.
erubescens Willey
erupta Nyl.
excedens Nyl.
***excentrica** Th. Fr. (Hafellner et al. 2002)
exilis (Flörke) Anzi
***farinacea** (H. Olivier) R. Sant. (Diederich 2003)
fissurinea Nyl.
floridana Willey
fuliginosa (Schaerer) Flotow
***fuscopurpurea** (Tul.) R. Sant. (Alstrup & Cole 1998)
***gelidae** R. Sant. (Spribille et al. 2010)
gerhardii Egea & Torrente (Grube 2007)
⁺**glaucella** Nyl. (Grube 2007)
glebosa Tuck.
granosa B. de Lesd.
gutberletiana Lendemer & D. Ray (Lendemer & Ray 2017)
gyalectoides Müll. Arg.
hamamelidis Nyl.
helvola (Nyl.) Nyl. (Harris 1977)
***hodgesii** Lendemer & R. C. Harris (Lendemer et al. 2016c)
hypochniza Nyl. (Seavey et al. 2017)
hypobela (Nyl.) Zahlbr.
ilicina Taylor Syn.: *Arthothelium ilicinum*
impallens Nyl.
incarnata Th. Fr. ex Almq.
infectans Egea & Torrente (Egea & Torrente 1995)
intervenians Nyl. Syn.: *Arthothelium interveniens* (Lücking et al. 2011b)
***intexta** Almq.
kermesina R. C. Harris, E. Tripp & Lendemer (Lendemer et al. 2013)
lapidicola (Taylor) Branth & Rostrup
lecanactidea Zahlbr.
***lecanorina** (Almq.) Grube (Grube 2007)
***lethariicola** Alstrup & M. S. Cole (Alstrup & Cole 1998)
leucastraea Tuck.
ligniariella Coppins (Spribille & Björk 2008)
***linitae** R. Sant. (Esslinger & Egan 1995)
luridoalba Nyl.
macounii G. Merr. (Kocourková et al. 2008) Syn.: *Arthothelium macounii*
macrotheca Fée (Lücking et al. 2011b) Syn.: *Arthothelium macrothecum*
madreana Egea & Torrente (Egea & Torrente 1995)
mediella Nyl.
mesoleuca Nyl. (Lücking et al. 2011b)
microsperma Nyl. (Seavey et al. 2017)
microspermella Willey
mirabilis Grube (Lücking et al. 2011b)
***molendoi** (Heufl. ex Frauenf.) R. Sant. (Alstrup & Cole 1998; Hafellner et al. 2002)
neoni B. de Lesd.

***nephromaria** (Nyl.) Nyl. ex H. Olivier
norvegica (Coppins & Tønsberg) McCune (McCune 2017)
ochrocincta Willey
ochrodiscodes Nyl.
ochrolutea Nyl.
ochrospila Nyl. (Seavey & Seavey 2012)
oxytera Nyl. (Fink 1935, Esslinger & Tucker 2009)
palmulacea (Müll. Arg.) R. Sant.
patellulata Nyl.
***peltigerea** Th. Fr. (Hafellner et al. 2002)
***peltigerina** (Almq.) H. Olivier
perminuta Willey
phaeobaea (Norman) Norman
***phaeophysciae** Grube & Matzer (Hafellner et al. 2002)
phlyctiformis Nyl. subsp. **californica** Grube (Grube 2007)
+pinastri Anzi
platygraphidea Nyl.
platyspilea Nyl.
polygramma Nyl.
polymorpha Ach.
***protoparmeliopseos** Etayo & Diederich (Kocourková & Knudsen 2015)
+pruinascens (Zahlbr.) Grube (Grube 2007) Syn.: *Arthothelium pruinascens*
+pruinoseella Nyl. (Grube 2007)
pruinoseula Nyl.
pseudostromatica F. Seavey & J. Seavey (Seavey et al. 2017)
punctiformis Ach.
pyrrhuliza Nyl.
+quintaria Nyl.
radiata (Pers.) Ach.
ravenelii Tuck.
redingeri Grube (Grube 2007)
reniformis (Pers.) Ach.
+rhoidis Zahlbr. (Grube 2007)
rubella (Fée) Nyl.
rubrocincta G. Merr. ex Grube & Lendemer (Grube & Lendemer 2009)
rupicola Fink
samdykeana Lendemer & D. Ray (Lendemer & Ray 2017)
+sanguinea Willey (Grube 2007) Syn.: *Arthothelium sanguineum*
septiseptella Nyl. (Fink 1935, Esslinger & Tucker 2009)
+sexlocularis Zahlbr. (Grube 2007)
siderea Degel.
simplicascens Nyl. (Lücking et al. 2011b)
spadicea Leighton
speciosa (Müll. Arg.) Grube (Grube 2007)
stellaris Kremp.
***stereocaulina** (Ohlert) R. Sant. (Zhurbenko 2010)
stevensoniana R. C. Harris & Lendemer (Lendemer et al. 2016c)
+subastroidea Anzi (McMullin et al. 2017)
subastroidella Nyl.
subdiffusa Willey
subdispuncta Nyl.
***subfuscicola** (Lindsay) Triebel
subminutissima Nyl.
subminutula Nyl.
subrubella Nyl.
susa R. C. Harris & Lendemer Syn.: *Arthothelium taediosum* auct. N.A. (Lendemer et al. 2013)

taedescens Nyl.
 ***tavaresii** Grube & Hafellner (Seavey et al. 2017)
terrigena Nyl.
 +**tetramera** (Stizenb.) Hasse (Grube 2007)
torulosa Fée
tuckermaniana Willey
varia (Ach.) Nyl.
 ***varians** (Davies) Nyl. Syn.: *Celidium varians* (Hawksworth 2003)
vernans Willey
vinosa Leighton
viridicans Willey
 ***xanthoparmeliarum** Etayo (Kocourková 2009)
xylographica Nyl.
alba Müll. Arg. = *a* *Stirtonia* sp.
aspera Leighton = *A. arthonioides*
atractospora Zahlbr. = *Naetrocymbe atractospora*
biseptata Degel. = *Mycoporum biseptatum* (Lendemer & Harris 2014c)
byssacea (Weigel) Almq. = *Inoderma byssaceum* (Weigel) Gray (Frisch et al. 2015)
caesia (Flotow) Körber = *Chrysothrix caesia*
carneorufa Willey = *Catillaria erysiboides*
chiodectella Nyl. = *Pachnolepia pruinata* (Grube 2007)
convexella Nyl. = a non-lichenized fungus (*Mycoporum* sp.?)
epipastoides auct. N.A. non Nyl. = *A. glaucella* (Grube 2007)
fusca (A. Massal.) Hepp = *A. lapidicola*
galactitella Nyl. = *A. glaucella* (Grube 2007)
glauescens Nyl. = *Schismatomma glauescens*
glaucumaria (Nyl.) Nyl. = *A. varians* (Hawksworth 2003)
gregaria (Weigel) Körber = *A. cinnabarina*
gregarina Willey = *Coniarthonia gregarina*
impolita (Hoffm.) Borrer = *Pachnolepia pruinata*
lecideella Nyl. ex Willey = *Chrysothrix caesia* (Lendemer 2008)
leucodontis (Poelt & Döbb.) Coppins = *Bryostigma muscigena*
leucopellaea (Ach.) Almq. = *Felipes leucopellaeus* (Frisch et al. 2014)
lurida Ach. nom. rej. = *A. spadicea*
melaspora Tuck. = *Sporostigma melaspora* (Grube 2001)
montagnei (Tuck.) R. C. Harris = uncertain species of *Cryptothecia*? (Lücking et al. 2011b)
muscigena Th. Fr. = *Bryostigma muscigena*
pruinata (Pers.) Steud. ex A. L. Sm. (Grube 2007) = *Pachnolepia pruinata* (Frisch et al. 2014)
pyrrhula Nyl. = *Coniarthonia pyrrhula*
ruana A. Massal. = *Arthothelium ruanum*
spectabilis Flotow = *Arthothelium spectabile*
 +*stictella* Stizenb. = *A. albopulverea* (Grube 2007)
taediosa Nyl. North American reports are *Arthonia susa* (Lendemer et al. 2013)
tremelloides Etayo Erroneously listed here; reported only from Mexico (Grube 2007)
tumidula (Ach.) Ach. = *A. cinnabarina*
verrucosa Egea & Torrente Erroneously listed here; reported only from Mexico (Grube 2007)
willei Tuck. = *A. diffusa* (Lendemer 2004a)

ARTHOPHACOPSIS Hafellner

***parmeliarum** Hafellner (Diederich 2003, Zhurbenko & Laursen 2003)

ARTHOPYRENIA A. Massal.

+**analepta** (Ach.) A. Massal. (Harris 1995a, Aptroot 2002a) Syn.: *Polyblastiopsis fallax*
betulicola R. C. Harris, E. Tripp & Lendemer (Harris et al. 2014)
cerasi (Schrader) A. Massal.
cinereopruinosa (Schaerer) A. Massal.

degelii R. C. Harris (Harris 1995a)
esenbeckiana (Fée) R. C. Harris (Harris 1995a)
exasperata R. C. Harris (Harris 1995a)
minor R. C. Harris
oblongens R. C. Harris (Harris 1995a)
⁺**plumbaria** (Stizenb. ex Hasse) R. C. Harris Syns.: *Porina plumbaria*, *Pyrenula herrei*
rappii Zahlbr.
⁺**subcerasi** (Vainio) Zahlbr. (Spribille et al. 2010)
taxodii R. C. Harris (Harris 1995a)
^{*}**texensis** (Cooke) D. Hawksw.
affinis (A. Massal.) R. C. Harris = *Strigula affinis* North American records are *S. jamesii*
alba (Schrader) Zahlbr. = *Acrocordia gemmata*
ambigua Zahlbr. = *Anisomeridium ambiguum*
anacardii Vainio = *Anisomeridium terminatum*
analeptella (Nyl.) Arnold = misidentification for North America
anisoloba Müll. Arg. = *Anisomeridium anisoloba*
antecellens (Nyl.) Arnold = *Mycoporum antecellens*
atomarioides Müll. Arg. = *Naetrocymbe atomarioides*
atractospora Zahlbr. = *Naetrocymbe atractospora*
bifera Zahlbr. = *A. malaccitula*
biformis (Borrer) A. Massal. = *Anisomeridium biforme*
bryospila (Nyl.) Arnold = *Collemopsidium bryospilum*
carinthiaca J. Steiner = *Anisomeridium carinthiacum*
cavata (Ach.) R. C. Harris = *Acrocordia cavata*
cinchonae (Ach.) Müll. Arg. = *Constrictolumina cinchonae*
confluens R. C. Harris (Harris 1995a) = *Constrictolumina leucostoma*
conformis (Nyl.) Müll. Arg. = misidentification for North America, mostly *Anisomeridium biforme*
conoidea (Fr.) Zahlbr. = *Acrocordia conoidea*
dimidiata Fink = *Anisomeridium carinthiacum*
distans (Willey) Zahlbr. = *Anisomeridium distans*
epidermidis (DC.) A. Massal. = *Naetrocymbe punctiformis*
faginea (Schaerer) Swinscow = *Strigula stigmatella*
fallax (Nyl.) Arnold = *A. analepta*
finkii Zahlbr. = *Acrocordia megalospora*
floridana Zahlbr. = *Naetrocymbe atomarioides*
fraxini A. Massal. = *Naetrocymbe fraxini*
gemmata (Ach.) A. Massal. = *Acrocordia gemmata*
halodytes (Nyl.) Arnold = *Collemopsidium halodytes*
hyalospora (Nyl.) Fink = *Lithothelium hyalosporum*
lapponina Anzi = *A. analepta*
leucochlora Müll. Arg. = *Anisomeridium leucochlorum*
litoralis (Leighton) Arnold (Fink 1935) = *Collemopsidium sublitorale* (Santesson et al. 2004)
lyrata R. C. Harris = *Constrictolumina lyrata*
macrocarpa (Körber) Zahlbr. = misidentification for North America
macrospora Fink = *Acrocordia megalospora*
majuscula (Nyl.) Zahlbr. = *Constrictolumina majuscula*
malaccitula (Nyl.) Zahlbr. = *Constrictolumina malaccitula*
megalospora Lonnr. = *Naetrocymbe megalospora*
mycoporoides Müll. Arg. = *Mycoporum mycoporoides*
padi Rabenh. = *Naetrocymbe punctiformis*
parvula Zahlbr. = *Anisomeridium biforme*
pinicola (Hepp) A. Massal. = *A. cinereopruinosa*
planorbis (Ach.) Müll. Arg. = *Constrictolumina planorbis*
prospersella (Nyl.) Zahlbr. = *Pyrenocollema prospersella*
punctiformis (Pers.) A. Massal. = *Naetrocymbe punctiformis*
quinqueseptata (Nyl.) Müll. Arg. = *Polymeridium quinqueseptatum*

rhypona (Ach.) A. Massal. (Aptroot 2002a) = Naetrocymbe rhypona
 salicis A. Massal. = Identity uncertain (Harris 1995a)
 sanfordensis Zahlbr. = Anisomeridium excaecariae
 sphaeroides (Wallr.) Zahlbr. = Acrocordia gemmata
 sublitoralis (Leighton) Arnold = Collemopsidium sublitoralis
 submuriformis R. C. Harris = Strigula submuriformis
 subprostans (Nyl.) Müll. Arg. = Anisomeridium subprostans
 subpunctiformis Nyl. = A. atomarioides
 tenuis R. C. Harris = Strigula americana
 tichothecioides Arnold = Pyrenocollema tichothecioides
 willeyana R. C. Harris = Anisomeridium polypori

ARTHOTHELIOPSIS Vainio

floridensis Lücking & W. R. Buck (Lücking et al. 2007)
planicarpa (Lücking) Lücking, Sérus. & Vězda (Lücking et al. 2007) A tentative report.

ARTHOTHELIUM A. Massal.

abnorme (Ach.) Müll. Arg.
adveniense Nyl.
anastomosans (Ach.) Arnold
distendens (Nyl.) Müll. Arg.
hallii (Tuck.) Zahlbr.
norvegicum Coppins & Tønsberg (Tønsberg & Williams 2006)
orbilliferum (Almq.) Hasse
ruanum (A. Massal.) Körber Syn.: Arthonia ruana
spectabile (Flotow) A. Massal. Syn.: Arthonia spectabilis
subcyrtodes (Willey) Hasse
violascens (Nyl.) Zahlbr.
 albovirescens (Nyl.) Fink = Arthonia albovirescens
 gregarinum (Willey) Zahlbr. = Coniarthonia gregarina
 ilicinum (Taylor) P. James = Arthonia ilicina
 interveniens (Nyl.) Zahlbr. = Arthonia interveniens
 lichenale (Peck) M. E. Barr (Barr et al. 1986) = Mycoporum compositum (Lendemer & Harris 2016)
 macounii (G. Merr.) W. Noble = Arthonia macounii
 macrothecum (Fée) A. Massal. = Arthonia macrothecum
 +pruinascens Zahlbr. = Arthonia pruinascens (Grube 2007)
 ruanideum (Nyl.) Arnold = A. ruanum
 +sanguineum (Willey) Zahlbr. = Arthonia sanguinea (Grube 2007)
 taediosum (Nyl.) Müll. Arg. North American reports are Arthonia susa (Lendemer et al. 2013)

ARTHRORHAPHIS Th. Fr.

***aeruginosa** R. Sant. & Tønsberg
alpina (Schaerer) R. Sant. Syn.: Bacidia alpina
citrinella (Ach.) Poelt Syn.: Bacidia citrinella, B. flavovirescens
 #**grisea** Th. Fr. Syn.: Lahmia fueistingii

ARTHROSPORUM A. Massal.

populorum A. Massal. Syns.: Bacidia populorum, B. acclinis, Bilimbia acclinis
 accline (Flotow) A. Massal. = A. populorum

ASAHINEA W. L. Culb. & C. F. Culb.

chrysantha (Tuck.) W. L. Culb. & C. F. Culb. Syn.: Cetraria chrysantha
scholanderi (Llano) W. L. Culb. & C. F. Culb. Syn.: Cetraria scholanderi

ASPICILIA A. Massal.

albomarginata B. de Lesd. Syn.: *Lecanora albomarginata*
 [*Lecanora albopruinosa* Looman]
alboradiata (H. Magn.) Oxner Syn.: *Lecanora alboradiata*
aliena (Zahlbr.) Oxner Syn.: *Lecanora aliena*
americana B. de Lesd. Syn.: *Lecanora americana*
anglica Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
annulata (Lynge) J. W. Thomson Syn.: *Lecanora annulata*
anseris (Lynge) J. W. Thomson Synonym: *Lecanora anseris*
aquatica Körber Syn.: *Lecanora aquatica*
arctica (Lynge) Oxner Syn.: *Lecanora arctica*
arizonica Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007, Knudsen et al. 2008b)
aspera (Mereschk.) Tomin (McCune et al. 2014b)
aurantiaca Owe-Larsson & A. Nordin (Knudsen et al. 2008b)
berntii A. Nordin, Tibell & Owe-Larsson Syn.: *Lecanora mastoidea* (Nordin et al. 2008)
bicensis F. Anderson & Lendemer (Anderson & Lendemer 2016)
boykinii Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
brucei Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
caesiopruinosa (H. Magn.) J. W. Thomson Syn.: *Lecanora caesiopruinosa*
californica Rosentreter (Rosentreter 1998)
candida (Anzi) Hue Syn.: *Lecanora candida*
cinerea (L.) Körber Syn.: *Lecanora cinerea*
cingulata (Zahlbr.) Oxner Syn.: *Lecanora cingulata*
composita (Lynge) J. W. Thomson Syn.: *Lecanora composita*
concinna (J. W. Thomson) J. W. Thomson (Thomson 1997)
confusa Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
contigua (Lynge) J. W. Thomson
cuprea Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007, Knudsen et al. 2008b)
curvabilis (Nyl.) Hue (Hansen 2006)
cyanescens Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
determinata (H. Magn.) N. S. Golubk. (Owe-Larsson et al. 2007)
disserpens (Zahlbr.) Räsänen Syn.: *Lecanora disserpens*
elevata (Lynge) J. W. Thomson Syn.: *Lecanora elevata*
filiformis Rosentreter (Rosentreter 1998)
fimbriata (H. Magn.) Clauzade & Rondon Syn.: *Lecanora fimbriata*
fumosa Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
glauopsina (Nyl. ex Hasse) Hue (Knudsen 2005b, Owe-Larsson et al. 2007)
grisea Arnold (Fryday 2001)
heteroplaca (Zahlbr.) Oxner Syn.: *Lecanora heteroplaca*
humboldtii (Lynge) J. W. Thomson
karelica (H. Magn.) Oxner
knudsenii Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
laevata (Ach.) Arnold Syn.: *Lecanora laevata*
laxula (H. Magn.) Brodo
lesleyana Darb. Syn.: *Lecanora lesleyana*
limitata (H. Magn.) J. W. Thomson Syn.: *Lecanora limitata*
mansourii Sohrabi (McCune et al. 2014b)
mashiginensis (Zahlbr.) Oxner
mazarina (Wahlenb.) R. Sant.
narssaquensis (Lynge) J. W. Thomson Syn.: *Lecanora basaltica*, *L. narssaquensis*
nashii Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
nathorstii (Lynge) J. W. Thomson
nikrapensis Darb. Syn.: *Lecanora nikrapensis*
nordlandica (H. Magn.) Degel.
novae-semliae (Zahlbr.) Oxner Syn.: *Lecanora novae-semliae*
olivaceobrunnea Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
olivaceopallida (H. Magn.) Lendemer (Lendemer et al. 2013)

pacifica Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007, Knudsen et al. 2008b)
peltastictoides (Hasse) K. Knudsen & Kocourk. (Knudsen & Kocourková 2013) Syn.: *Lecanora peltastictoides*
pergibbosa (H. Magn.) Räsänen Syn.: *Lecanora pergibbosa*
perradiata (Nyl.) Hue Syn.: *Lecanora perradiata*
pertusa (Lynge) J. W. Thomson Syn.: *Lecanora pertusa*
phaea Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007, Knudsen et al. 2008b)
plicigera (Zahlbr.) Räsänen Syn.: *Lecanora plicigera*
polychroma Anzi Syn.: *Lecanora polychroma*
praecrenata (Nyl. ex Hasse) Hue Syn.: *Lecanora praecrenata* (Owe-Larsson et al. 2007, Knudsen et al. 2008b)
reptans (Looman) Wetmore Syn.: *Lecanora reptans*:
rolleana Hue Syn.: *Lecanora rolleana*
rosulata Körber Syn.: *Lecanora rosulata*
ryrkaipiae (H. Magn.) Oxner Syn.: *Lecanora ryrkaipiae*
santamonicae Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007, Knudsen et al. 2008b)
sipeana (H. Magn.) Owe-Larsson & A. Nordin Syn.: *Lecanora sipeana* (Owe-Larsson et al. 2007)
sorediza (Lynge) J. W. Thomson
sublapponica (Zahlbr.) Oxner Syn.: *Lecanora sublapponica*
submersa (Lamy) Hue
subplicigera (H. Magn.) Oxner
subradians (Nyl.) Hue Syn.: *Lecanora stygioplaca*, *L. subradiascens*, *L. subradians*
substictica Owe-Larsson & A. Nordin (Owe-Larsson et al. 2007)
supertegens Arnold Syn.: *Lecanora supertegens*
tenuis (H. Magn.) Owe-Larsson & A. Nordin Syn.: *Lecanora tenuis* (Owe-Larsson et al. 2007)
verrucigera Hue Syn.: *Lecanora verrucigera*
alphoplaca (Wahlenb.) Poelt & Leuckert = *Lobothallia alphoplaca*
alpina (Sommerf.) Arnold = *Bellemerea alpina*
bennettii (Lynge) J. W. Thomson = *A. mashiginensis*
caesiocinerea (Nyl. ex Malbr.) Arnold = *Circinaria caesiocinerea*
calcarea (L.) Körber = *Circinaria calcarea*
cinereorufescens (Ach.) A. Massal. = *Bellemerea cinereorufescens*
contorta (Hoffm.) Kremp. = *Circinaria contorta*
desertorum (Kremp.) Mereschk. North American reports are *Circinaria arida* (Owe-Larsson et al. 2011)
diamarta (Ach.) Boistel = *Bellemerea diamarta*
excavata G. Thor & Timdal = *Acarospora moenium*
flavida (Hepp) Rehm = *Eiglera flavida*
fruticulosa (Eversm.) Flagey = *Circinaria rogeri* for N.A. reports
gibbosa (Ach.) Körber = *Circinaria gibbosa*
hispida Mereschk. = *Circinaria hispida*
intermutans (Nyl.) Arnold (McCune et al. 2014b) = *Aspiciliella intermutans*
lacustris (With.) Th. Fr. = *Ionaspis lacustris*
leproscens (Sandst.) Hav. = *Circinaria leproscens*
mastoidea (Lynge) J. W. Thomson = *A. berntii* (Nordin et al. 2008)
mastrucata (Wahlenb.) Th. Fr. (Wetmore 1967) = *Sagedia mastrucata*
melanaspis (Ach.) Poelt & Leuckert = *Lobothallia melanaspis*
melinodes Körber = *Porpidia melinodes*
moenium (Vainio) G. Thor & Timdal = *Acarospora moenium* (Nordin et al. 2009)
myrinii (Fr.) Stein = *Aspilidea myrinii*
pelobotrya (Wahlenb.) Th. Fr. = *Amygdalaria pelobotryon*
praeradiosa (Nyl.) Poelt & Leuckert = *Lobothallia praeradiosa*
quartzitica W. A. Weber = *Schaereria fuscocinerea* (Owe-Larsson et al. 2007)
radiosa (Hoffm.) Poelt & Leuckert = *Lobothallia radiosa*
rogeri Sohrabi (Sohrabi et al. 2013b) = *Circinaria rogeri*
sanguinea Kremp. = *Bellemerea sanguinea*

simoënsis Räsänen (Owe-Larsson et al. 2007) = *Sagedia simoënsis*
stygioplaca (Nyl.) Hue = *A. subadians*
subradiascens (Nyl.) Hue = *A. subadians*
subsorediza (Lyng.) R. Sant. = *Bellemerea subsorediza*
uxoris (Werner) V. J. Rico (Shrestha & St. Clair 2009) North American report = *Teuhoa junipericola* (Sohrabi et al. 2013a)

ASPICILIELLA M. Choisy

intermutans (Nyl.) M. Choisy Syn.: *Aspicilia intermutans* (Zakeri et al. 2017)

ASPIDOTHELIUM Vainio (Nelsen et al. 2017)

cinerascens Vainio (Lücking et al. 2011b) Syn.: *Thelenella cinerascens*

fugiens (Müll. Arg.) R. Sant. Syn.: *Thelenella fugiens* (Nelsen et al. 2017)

geminiparum (Malme) R. Sant. (Lücking et al. 2011b) Syn.: *Thelenella geminipara*

scutellarpum Lücking (Lücking et al. 2011b)

ASPILIDEA Hafellner (Hafellner & Türk 2001)

myrinii (Fr.) Hafellner

ASTEROPHOMA D. Hawksw.

***mazaediicola** D. Hawksw.

ASTEROTHYRIUM Müll. Arg.

decipiens (Rehm) R. Sant.

leucophthalmum (Müll. Arg.) R. Sant.

rotuliforme (Müll. Arg.) Sérus. Syn.: *Gyalectidium rotuliforme*, *Lopadiopsis floridana*

ASTROTHELIUM Eschw.

aeneum (Eschw.) Aptroot & Lücking Syn.: *Trypethelium aeneum* (Aptroot & Lücking 2016)

cinnamomeum (Eschw.) Müll. Arg.

crassum (Fée) Aptroot (Aptroot & Lücking 2016)

diplocarpoides Müll. Arg. (Lücking et al. 2011b)

diplocarpum Nyl. (Harris 1995a)

feei (C. F. W. Meissn.) Aptroot & Lücking (Aptroot & Lücking 2016)

floridanum Zahlbr.

marcidum (Fée) Aptroot & Lücking Syn.: *Trypethelium marcidum* (Aptroot & Lücking 2016)

megasperma (Mont.) Aptroot & Lücking Syn.: *Clathroporina diphloea*, *Laurera megasperma* (Aptroot & Lücking 2016)

nitidiusculum (Nyl.) Aptroot & Lücking Syn.: *Trypethelium nitidiuscula* (Aptroot & Lücking 2016)

phlyctaena (Fée) Aptroot & Lücking Syn.: *Trypethelium ochroleucum*, *T. pallescens* (Aptroot & Lücking 2016)

porosum (Ach.) Aptroot & Lücking Syn.: *Trypethelium porosum* (Aptroot & Lücking 2016)

scoria (Fée) Aptroot & Lücking Syn.: *Trypethelium scoria* (Aptroot & Lücking 2016)

subdisjunctum (Müll. Arg.) Aptroot & Lücking Syn.: *Laurera subdisjuncta* (Aptroot & Lücking 2016)

variolosum (Ach.) Müll. Arg. Syn.: *Trypethelium variolosum* (Aptroot & Lücking 2016)

versicolor Müll. Arg.

confusum Müll. Arg. = *A. crassum* (Aptroot & Lücking 2016)

conicum auct. = *A. cinnamomeum*

conicum Eschw. = (?) type not found

galbineum Kremp. = *A. macrocarpum* (Aptroot & Lücking 2016)

ochrothelizum Müll. Arg. = *A. galbineum*

ATHALLIA Arup, Frödén & Søchting (Arup et al. 2013)

cerinelloides (Erichsen) Arup, Frödén & Søchting Syn.: *Caloplaca cerinelloides*

holocarpa (Hoffm.) Arup, Frödén & Søchting Syn.: *Caloplaca holocarpa*

pyracea (Ach.) Arup, Frödén & Søchting Syn.: *Caloplaca pyracea*

saxifragarum (Poelt) Arup, Frödén & Söchting Syn.: *Caloplaca saxifragarum*
scopularis (Nyl.) Arup, Frödén & Söchting Syn.: *Caloplaca scopularis*
vitellinula (Nyl.) Arup, Frödén & Söchting Syn.: *Caloplaca vitellinula*

ATHELIA Pers.

***arachnoidea** (Berk.) Jülich (Haffelner et al. 2002)

+**epiphylla** Pers.

poeltii Jülich

ATLA Savić & Tibell

alaskana S. Tibell & Tibell (Tibell & Tibell 2015)

AULAXINA Fée

microphana (Vainio) R. Sant.

quadrangula (Stirton) R. Sant.

BACHMANNIOMYCES D. Hawksw.

***uncialicola** (Zopf) D. Hawksw.

BACIDIA De Not.

absistens (Nyl.) Arnold

aggregatula Malme

arceutina (Ach.) Arnold

[**Bilimbia artyta** (Ach.) Fink]

auerswaldii (Hepp ex Stizenb.) Mig.

augustinii (Tuck.) Zahlbr. = misplaced here, correct placement uncertain (Ekman 1996)

bagliettoana (A. Massal. & De Not.) Jatta

biatorina (Körber) Vainio

brouardii (B. de Lesd.) Zahlbr.

campalea (Tuck.) S. Ekman & Kalb

circumspecta (Nyl. ex Vainio) Malme

coprodes (Körber) Lettau (Llop & Ekman 2004) Syn.: *Bilimbia trachona* auct.

coruscans S. Ekman (Ekman 2004a)

diffracta S. Ekman

ekmaniana R. C. Harris, Lendemer & Ladd (Lendemer et al. 2016b)

flavens (Willey) Zahlbr. = a species of *Lecania* (Ekman 1996)

friesiana (Hepp) Körber

granosa (Tuck.) Zahlbr. Syn.: *Bilimbia granosa*, *Bilimbia pammellii* (Ekman 2014)

hegetschweileri (Hepp) Vainio

helicospora S. Ekman

herbarum (Stizenb.) Arnold

heterochroa (Müll. Arg.) Zahlbr.

hostheleoides (Nyl.) Zahlbr. Syn.: *Bilimbia accelinis*

idahoensis H. Magn. (McCune et al. 2014b)

igniarii (Nyl.) Oxner

illudens (Nyl.) Lynge

insularis Zahlbr.

ioessa Herre = misplaced here, correct placement uncertain (Ekman 1996)

jacobi (Tuck.) Hasse = misplaced here, correct placement uncertain (Ekman 1996, 2004a)

kekesiana R. C. Harris (Harris 2009)

kingmanii Hasse = misplaced here, correct placement uncertain (Ekman 1996)

laurocerasi (Delise ex Duby) Zahlbr.

lobarica Printzen & Tønsberg (Printzen & Tønsberg 2007)

medialis (Tuck. ex Nyl.) B. de Lesd. (Ekman 1996) Syn.: *Biatora molybditis*, *Bilimbia molybditis*, *Lecidea medialis* (Ekman 1996)

mutabilis Malme

***peltigericola** Vainio (Weber & Wittman 2000)
phyllopsoropsis R. C. Harris & Lendemer (Harris & Lendemer 2006)
polychroa (Th. Fr.) Körber Syn.: *Biatora fusciorubella*
purpurans R. C. Harris, Lendemer & Ladd (Lendemer et al. 2016b)
ravenelii (Tuck.) Zahlbr. Syn.: *Bilimbia ravenelii* Correct placement uncertain (Ekman 1996)
reagens Malme
rosellizans S. Ekman (Ekman 2009)
rubella (Hoffm.) A. Massal.
rubidofusca (Willey) Zahlbr. Syn.: *Bilimbia rubidofusca* Possibly a species of *Gyalidea* (Printzen 1995)
russeola (Kremp.) Zahlbr.
salmonea S. Ekman
saxicola Looman = misplaced, correct placement uncertain (Ekman 1996)
schweinitzii (Fr. ex Tuck.) A. Schneider Syn.: *Biatora leucampyx* (Lendemer & Harris 2012)
scopulicola (Nyl.) A. L. Sm.
sorediata Lendemer & R. C. Harris (Lendemer et al. 2016b)
subgranulosa (Tuck.) Riddle Erroneously listed as a synonym of *Phyllopsora canoumbrina* in the checklist; possibly belongs to *Psorella* (Ekman 1996)
subincompta (Nyl.) Arnold
suffusa (Fr.) A. Schneider Syn.: *Biatora suffusa*
veneta S. Ekman (Ekman 2004a)
vermifera (Nyl.) Th. Fr. (Ekman 1996)
viridifarinsa Coppins & P. James (Tønsberg 1997)
abbrevians (Nyl.) Th. Fr. = *B. igniarii*
abductans (Nyl.) Zahlbr. = *B. schweinitzii*
accedens (Arnold) Lettau = *Bilimbia accedens*
accedens sensu Harris = unnamed species (Ekman 1996)
acclinis (Flotow) Zahlbr. = *Arthrosporum populorum*
affinis (Stizenb.) Vainio = *B. subincompta*
akompsa (Tuck.) Fink = a *Lecanactis* sp.
alaskensis (Nyl.) Zahlbr. = *Herteliana alaskensis*
albescens (Kremp.) Zwackh = *Bacidina phacodes*, but a misidentification for N.A. (Ekman 1996)
alpina (Schaerer) Vainio = *Arthrorhaphis alpina*
apiatica (Müll. Arg.) Zahlbr. = *Bacidina apiatica*
arnoldiana Körber = *Bacidina arnoldiana*
arthroniza (Nyl.) Zahlbr. = *Lecidella stigmathea*
assulata (Körber) Vězda = *Bacidina assulata*
atrogrisea (Delise ex Hepp) Körber = *B. laurocerasi*
aurantiaca Vězda = *Fellhanera aurantiaca*
bacillifera (Nyl.) Arnold = *B. circumspecta*
beckhausii Körber = *Biatora beckhausii* (Printzen 2014)
caloosensis (Tuck.) Zahlbr. = *B. hostheleoides*
carneoalbida (Müll. Arg.) Coppins = *Mycobilimbia carneoalbida*
chlorantha (Tuck.) Fink = *Ropalospora chlorantha*
chlorococca (Stenh.) Lettau = *Scoliciosporum chlorococcum*
chlorosticta (Tuck.) A. Schneider = *Micarea chlorosticta*
citrinella (Ach.) Branth & Rostrup = *Arthrorhaphis citrinella*
clementis Hasse = *Bactrospora patellarioides* (Ekman 1996)
cuprea (A. Massal.) Lettau = *Lecania cuprea* (Ekman 1996)
cupreorosella (Nyl.) A. Schneider = *Lecania cuprea*
declinis (Tuck.) Zahlbr. = *Catillaria nigroclavata*
dryina (Ach.) Fink = *Bactrospora dryina*
effusa auct. = *B. assulata*
egenula (Nyl.) Arnold = *Bacidina egenula*
egenuloidea Fink = *Bacidina egenuloidea*
endocyanea (Tuck. ex Willey) Zahlbr. = *Micarea endocyanea*

endoleuca auct. = *B. laurocerasi*
 epixanthoides (Nyl.) Lettau = *Mycobilimbia epixanthoides*
 flavovirescens (Dickson) Anzi = *Arthrorhaphis citrinella*
 floridana (Tuck.) Zahlbr. = *Fellhanera floridana*
 fusca (A. Massal.) Du Rietz = *Mycobilimbia tetramera*
 fuscorubella (Hoffm.) Bausch = *B. polychroa*
 fuscorubella var. suffusa (Fr.) Fink = *B. suffusa*
 globulosa (Flörke) Hafellner & V. Wirth = *Biatora globulosa*
 gyalectiformis (Zahlbr.) Hasse = *Ramonia gyalectiformis*
 gyalizella (Nyl.) Zahlbr. = *Gyalecta gyalizella* (Baloch et al. 2013a)
 hegetschweileri auct. = *B. vermifera* (Ekman 1996)
 hegetschweileri (Hepp) Vainio = *B. subincompta* (Nyl.) Arnold (Ekman 1996)
 hemipolia (Nyl.) Malme (Weber & Wittman 2000, Czarnota & Coppins 2007) = *Biatora hemipolia* (Printzen 2014)
 herrei Zahlbr. = *Ophioparma rubricosa*
 hypnophila (Turner ex Ach.) Zahlbr. = *Bilimbia sabuletorum*
 incompta (Borrer ex Hooker) Anzi = misidentification for North America
 intermedia (Hepp ex Stizenb.) Arnold = *Bacidina assulata* (Ekman 1996)
 inundata (Fr.) Körber = *Bacidina inundata*
 laurocerasi subsp. idahoensis (H. Magn.) S. Ekman = *B. idahoensis* (McCune et al. 2014b)
 leucophyllina (Nyl.) Fink = misidentification for North America
 lignaria (Ach.) Lettau = *Micarea lignaria*
 lugubris (Sommerf.) Zahlbr. = *Ropalospora lugubris*
 luteola "(Ach.) Mudd" = *B. rubella*
 meadii (Tuck. ex Willey) Zahlbr. = *Byssoloma meadii*
 melaena (Nyl.) Zahlbr. = *Micarea melaena*
 microcarpa (Th. Fr.) Lettau = *Bilimbia microcarpa*
 microphyllina auct. = *Phyllopsora santensis*
 microphyllina (Tuck.) Riddle = misidentification for North America
 minuscula Anzi = *B. beckhausii*
 molybditis (Tuck.) Zahlbr. = *B. medialis*
 muscorum (Sw.) Mudd = *B. bagliettoana*
 naegelii (Hepp) Zahlbr. = *Lecania naegelii*
 nivalis Follmann = *Stereocaulon nivale*
 obscurata (Sommerf.) Zahlbr. = *Mycobilimbia tetramera*
 pallens (Kullhem) Zahlbr. = *Biatora pallens* (Printzen & Otte 2005)
 pammellii (Fink) Zahlbr. = *Bacidia granosa* (Ekman 2014)
 phacodes auct. N. Am. = *Bacidina californica*, in part
 populorum (A. Massal.) Trevisan = *Arthrosporum populorum*
 rosella (Pers.) De Not. = *B. rosellizans* for North American reports
 rubricosa (Müll. Arg.) Zahlbr. = *Ophioparma rubricosa*
 sabuletorum (Schreber) Lettau = *Bilimbia sabuletorum*
 sibiriensis (Willey ex Rothr.) Zahlbr. = *Lecania subfuscula* (Ekman 1996)
 sphaeroides (Dickson) Zahlbr. = *Mycobilimbia pilularis*
 sphaeroides auct. non (Dickson) Zahlbr. = *Mycobilimbia carneoalbida*
 stigmatella (Tuck.) Zahlbr. = *Lecania stigmatella*
 subfuscula (Nyl.) Th. Fr. = *Lecania subfuscula*
 tetramera (De Not.) Coppins = *Mycobilimbia tetramera*
 trachona (Ach.) Lettau North American reports are *B. coprodes* (Llop & Ekman 2004)
 trisepta (Hellbom) Zahlbr. = *Micarea peliocarpa*
 umbrina (Ach.) Bausch = *Scoliciosporum umbrinum*
 verecundula (Th. Fr.) = misidentification for North America (Ekman 1996)

BACIDINA Vězda

aenea S. Ekman

apiahica (Müll. Arg.) Vězda Syn.: *Bacidia apiahica*

arnoldiana (Körber) V. Wirth & Vězda Syn.: *Bacidia arnoldiana*
assulata (Körber) S. Ekman Syn.: *Bacidia assulata*, *B. effusa*, *B. intermedia*
brittoniana (Riddle) LaGreca & S. Ekman (Berger & LaGreca 2014)
californica S. Ekman Syn.: *Bacidia phacodes* auct. N.A., *B. albescens* auct. N.A.?
chlorotricula (Nyl.) Vězda & Poelt (Ekman 1996)
contecta S. Ekman & T. Sprib. (Spribille et al. 2009)
crystallifera S. Ekman
delicata (Leighton) V. Wirth & Vězda (Harris & Lendemer 2005)
egenula (Nyl.) Vězda Syn.: *Bacidia egenula*
egenuloidea (Fink) S. Ekman Syn.: *Bacidia egenuloidea*
inundata (Fr.) Vězda Syn.: *Bacidia inundata*
neosquamulosa (Aptroot & van Herk) S. Ekman (Ekman 2004b)5
pallidocarnea (Müll. Arg.) Vězda (Seavey & Seavey 2012)
phacodes (Körber) Vězda (Harris & Ladd 2005)
ramea S. Ekman
squamellosa S. Ekman
phacodes (Körber) Vězda = *Bacidina californica*, in part, for N.A. records
varia S. Ekman = *B. brittoniana*

BACIDIOPSORA Kalb

orizabana (Vainio) Kalb (Seavey et al. 2017)
squamulosula (Nyl.) Kalb (Seavey et al. 2014)

BACTROSPORA A. Massal.

acicularis (C. W. Dodge) Egea & Torrente (Egea et al. 2004a)
brevispora R.C. Harris
brodoi Egea & Torrente
carolinensis (Ellis & Everh.) R. C. Harris (Knudsen et al. 2011b)
cascadensis Ponzetti & McCune (Ponzetti & McCune 2006)
denticulata (Vainio) Egea & Torrente
dryina (Ach.) A. Massal. Syn.: *Bacidia dryina*
lamprospora (Nyl.) Lendemer Syns.: *Gyalecta lamprospora*, *Melampylidium macrosporum* (Lendemer 2004a)
myriadea (Fée) Egea & Torrente
patellarioides (Nyl.) Almq. Syns.: *Lecanactis patellarioides*, *Bacidia clementis*
spiralis Egea & Torrente
integrispora Seaver = *B. denticulata* (Harris 1995a)
macrospora R.C. Harris = *B. lamprospora*
mesospora R.C. Harris = *B. carolinensis*
nematospora R.C. Harris = *B. myriadea*

BACULIFERA Marbach & Kalb

curtisii (Tuck.) Marbach Syn.: *Buellia curtisii* (Marbach 2000), *Gyrostomum curtisii*
imshaugiana (R. C. Harris) Marbach Syn.: *Buellia imshaugiana* (Marbach 2000)
micromera (Vainio) Marbach (Seavey et al. 2017)

BAEOMYCES Pers.

carneus Flörke
placophyllus Ach.
rufus (Hudson) Rebent.
absolutus Tuck. = *Dibaeis absoluta*
aeruginosa (Scop.) DC. = *Icmadophila ericetorum*
byssoides (L.) Ach. (Claassen 1912) = *B. rufus*
fungoides (Sw.) Ach. North American reports are *Dibaeis baeomyces*
roseus Pers. = *Dibaeis baeomyces*

BAGLIETTOA A. Massal.

- baldensis** (A. Massal.) Vězda (Breuss 2007a) Syn.: *Verrucaria baldensis*
calciseda (DC.) Gueidan & Cl. Roux Syn.: *Verrucaria calciseda* (Knudsen & Kocourková 2009b)
marmorea (Scop.) Gueidan & Cl. Roux Syn.: *Verrucaria marmorea* (Yuzon et al. 2014)
rubrocincta (Breuss) Gueidan & Cl. Roux (Yuzon et al. 2014) Syn.: *Verrucaria rubrocincta*

BATHELIUM Ach. (Harris 1995a)

- carolinianum** (Tuck.) R. C. Harris (Harris 1995a) Syn.: *Trypethelium carolinianum*
madreporiforme (Eschw.) Trevisan (Harris 1995a) Syn.: *Laurera madreporiformis*

BELLEMERE Hafellner & Cl. Roux

- alpina** (Sommerf.) Clauzade & Cl. Roux Syns.: *Lecanora alpina*, *L. applegatei*, *Aspicilia alpina*
cinereorufescens (Ach.) Clauzade & Cl. Roux Syns.: *Aspicilia cinereorufescens*, *Lecanora cinereorufescens*
diamarta (Ach.) Hafellner & Cl. Roux Syn.: *Aspicilia diamarta*
sanguinea (Kremp.) Hafellner & Cl. Roux Syns.: *Aspicilia sanguinea*, *Lecanora sanguinea*
subsolediza (Lynge) R. Sant. Syns.: *Lecidea subsolediza*, *Aspicilia subsolediza*

BELLEMERELLA Nav.-Ros. & Cl. Roux

- *ritae** Pérez-Ortega & T. Sprib. (Pérez-Ortega & Spribille 2007)

BELONIA Körber ex Nyl. = **GYALECTA** (Baloch et al. 2013a)

- americana** Fink ex Hedr. = *Robergea pupula*, but excluded as a non-lichen
fennica Vainio = *Gyalecta russula*
russula Körber ex Nyl. = *Gyalecta russula*

BIATORA Fr.

- aegrefaciens** Printzen (Printzen et al. 2002)
alaskana Printzen & Tønsberg (Printzen & Tønsberg 1999)
appalachensis Printzen & Tønsberg (Printzen & Tønsberg 2004)
aureolepra T. Sprib. & Tønsberg (Spribille et al. 2009)
beckhausii (Körber) Tuck. Syn.: *Bacidia beckhausii* (Printzen 2014)
caulophylla Tuck. Possibly belongs to *Lecanora* (Ryan & Nash 1997a)
chrysantha (Zahlbr.) Printzen in V. Wirth (Printzen 1995)
chrysanthoides Printzen & Tønsberg (Printzen & Tønsberg 2003)
cuprea (Sommerf.) Fr. Syn.: *Lecidea cuprea*
efflorescens (Hedl.) Räsänen (Printzen 1995) Syns.: *Lecidea efflorescens*, *L. epixanthoidiza*
ementiens (Nyl.) Printzen Syn.: *Lecidea ementiens* (Printzen 2014)
fallax Hepp (Printzen & Tønsberg 1999)
flavopunctata (Tønsberg) Hinter. & Printzen Syn.: *Lecanora flavopunctata*
globulosa (Flörke) Fr. Syns.: *Bacidia globulosa*, *Catillaria globulosa*, *Lecidea globulosa*, *L. sylvana* (Printzen 2004)
helvola Körber ex Hellbom (Spribille et al. 2010) Syn.: *Lecidea helvola*
hemipolia (Nyl.) S. Ekman & Printzen Syn.: *Bacidia hemipolia* (Printzen 2014)
hypophaea Printzen & Tønsberg (Printzen & Tønsberg 1999)
kodiakensis Printzen & Tønsberg (Printzen & Tønsberg 2004)
ligni-mollis T. Sprib. & Printzen (Spribille et al. 2009)
longispora (Degel.) Lendemer & Printzen Syn.: *Lecidea helvola* var. *longispora* (Lendemer 2004b)
meiocarpa (Nyl.) Arnold Syn.: *Lecidea meiocarpa*, *L. minuta*
meiocarpa var. **tacomensis** (Printzen & Tønsberg) Printzen & Tønsberg (Printzen & Tønsberg 2004) Syn.: *Lecidea meiocarpa* var. *tacomensis*
mendax Anzi (McMullin et al. 2017)
nobilis Printzen & Tønsberg (Printzen & Tønsberg 1999)
ocelliformis (Nyl.) Arnold (Printzen & Otte 2005)
oligocarpa Printzen & Tønsberg (Printzen & Tønsberg 2004)
pallens (Kullhem) Printzen (Printzen & Otte 2005) Syns.: *Cliostomum pallens*, *Bacidia pallens*

pausiaca Printzen & Tønsberg (Printzen & Tønsberg 2003)
pontica Printzen & Tønsberg (Printzen & Tønsberg 2003)
printzenii Tønsberg (Tønsberg 2002)
pycnidiata Printzen & Tønsberg (Printzen & Tønsberg 2004)
rufidula (Graewe) S. Ekman & Printzen (Printzen & Tønsberg 1999)
sphaeroidiza (Vainio) Printzen & Holien (Dillman et al. 2012)
subduplex (Nyl.) Printzen (Printzen 1995) Syn.: *Lecidea subduplex*, *L. apochroeiza*, *L. internectens*
terrae-novae Printzen & J. W. McCarthy (Printzen et al. 2017)
toensbergii Holien & Printzen (Printzen & Tønsberg 1999)
vacciniicola (Tønsberg) Printzen (Printzen 1995) Syn.: *Lecidea vacciniicola*
vernalis (L.) Fr. Syn.: *Lecidea vernalis*
atropurpurea (Schaerer) Hepp = *Catinaria atropurpurea*
albohyalina (Nyl.) Bagl. & Carestia = *Lecidea albohyalina* (Printzen & Tønsberg 1999)
amaurospoda Anzi = *Lecidea pullata*
anthracophila (Nyl.) Hafellner = *Carbonicola anthracophila*
botryosa Fr. (Printzen 1995) = *Hertelidea botryosa*
carneoalbida (Müll. Arg.) Coppins = *Mycobilimbia carneoalbida*
cladoniscum Willey (see note under *Nesolechia cladoniscum*)
cyrtella (Ach.) W. Mann = *Lecania cyrtella*
decipiens (Ehrh.) Fr. = *Psora decipiens*
epixanthoides (Nyl.) Diederich = *Mycobilimbia epixanthoides*
floridana Tuck. = *Fellhanera floridana*
franciscana Tuck. = *Lecania franciscana*
friesii (Ach.) Tuck. = *Xylopsora friesii*
furvonigrans Tuck. ex Willey = *Lecidea furvonigrans*
fuscorubella (Hoffm.) Tuck. = *Bacidia polychroa*
hypomela “Nyl.” (Mohr 1901) = *Lecidea hypomela*?
meadii Tuck. ex Willey = *Byssoloma meadii*
molybditis Tuck. = *Bacidia medialis*
myriocarpella G. Merr. = *Lecidea enalla* (Printzen 1995)
paddensis Tuck. = *Lecanora paddensis* (McCune et al. 2014b)
papillariae Willey (see note under *Nesolechia cladoniscum*)
parvifolia (Pers.) Tuck. = *Phyllopsora parvifolia*
petri Tuck. = *Romjularia lurida*
porphyrospoda Anzi = *Myochroidea porphyrospoda*
pullata Norman = *Frutidella pullata*
pullula Tuck. = *Lecanora anopta*
rufofusca Anzi = *Myochroidea rufofusca*
rufonigra Tuck. = *Psorula rufonigra*
russula (Ach.) Mont. = *Ramboldia russula*
russellii Tuck. = *Psora russellii*
scrupulosa Eckfeldt = *Fuscidea scrupulosa*
sibiriensis Willey ex Rothr. = *Lecania subfuscula* (Ekman 1996, Dillman et al. 2012)
sphaeroides (Dickson) Körber = *Mycobilimbia pilularis*
suffusa Fr. = *Bacidia suffusa*
turgidula (Fr.) Nyl. = *Lecidea turgidula*
varians (Ach.) Eschw. = *Lecidea varians*
viridescens (Schrader) W. Mann = *Trapeliopsis viridescens*

BIATORELLA De Not.

camptocarpa (Tuck.) Fink (Tuckerman 1888, Fink 1935, Esslinger & Tucker 2009)
conspurcans Norman (Dillman et al. 2012)
contigua N. S. Golubk. & Piin (Zhurbenko et al. 2005)
cyphalea (Tuck.) Zahlbr.
floridensis H. Magn.
hemisphaerica Anzi

albidula (Willey) Zahlbr. = Myrionora albidula
 campestris (Fr.) Almq. = Sarcosagium campestre
 clauzadeana Llimona & Vězda = Acarospora clauzadeana
 clavus (DC.) Th. Fr. = Sarcogyne clavus
 conspersa (Fée) Vainio = Piccolia conspersa
 fossarum (Dufour ex Fr.) Th. Fr. = B. hemisphaerica for North American records
 geophana (Nyl.) Rehm (Fink 1935) = Steinia geophana
 hypophaea (Nyl.) Blomb. & Forssell = Sarcogyne hypophaea
 kulshanensis Herre = Sporastatia testudinea (Ketzner 2010)
 leucampyx Tuck. = Bacidia schweinitzii (Lendemer & Harris 2012)
 microhaema Norman = Strangospora microhaema
 moriformis (Ach.) Th. Fr. = Strangospora moriformis
 nannaria (Tuck.) Zahlbr. (Fink 1935) = Piccolia nannaria
 ochrophora (Nyl.) Arnold = Piccolia ochrophora
 plicata (H. Magn.) Zahlbr. = Sarcogyne plicata (Knudsen & Lendemer 2005a)
 pruinosa "(Körber) Mudd" = Sarcogyne regularis
 rappii Zahlbr. = Ramonia microspora (Lendemer & Knudsen 2011)
⁺resinae (Fr.) Th. Fr. = Sarea resinae
 revertens (Tuck.) Herre (Tuckerman 1882, Fink 1935) = Polysporina simplex (Tucker & Jordan 1979)
 simplex (Taylor) Branth & Rostrup = Polysporina simplex
 terrena Hasse = Sarcogyne crustacea (Knudsen & Kocourková 2010a)
 testudinea (Ach.) A. Massal. = Sporastatia testudinea

BIATORIDIUM J. Lahm

delitescens (Arnold) Hafellner (Ekman 1996)
monasteriense J. Lahm ex Körber (McCune & Rosentreter 2014)

BIATOROPSIS Räsänen

***minuta** Millanes, Diederich, M. Westb. & Wedin (Millanes et al. 2016)
 ***usnearum** Räsänen

BIAZROVIA Zhurb. & Etayo

***stereocaulicola** Zhurb. & Etayo (Zhurbenko & Pino-Bodas 2017)

BILIMBIA De Not.

accedens Arnold Syns.: Mycobilimbria accedens, Myxobilimbria accedens (Spribille et al. 2010)
lobulata (Sommerf.) Hafellner & Coppins Syns.: Mycobiolimbria lobulate, Toninia lobulata (Veldkamp 2004)
microcarpa (Th. Fr.) Th. Fr. Syns.: Bacidia microcarpa, Mycobilimbria microcarpa (Veldkamp 2004)
sabuletorum (Schreber) Arnold Syns.: Bacidia sabuletorum, B. hypnophila, Mycobilimbria sabuletorum, Myxobilimbria sabuletorum (Veldkamp 2004)
 acclinis (A. Massal.) Trevisan (Fink 1935) = Arthrosporum populorum (Ekman 1996)
 caloosensis (Tuck.) Fink (Fink 1935) = Bacidia hostheleoides (Ekman 1996)
 caudata (Nyl.) Fink = Ropalospora lugubris
 cupreorosella (Nyl.) Bausch (Fink 1935) = Lecania cuprea (Ekman 1996)
 declinis (Tuck.) Fink (Fink 1935) = Catillaria nigroclavata (Ekman 1996)
 floridana (Tuck.) Riddle (Fink 1935) = Fellhanera floridana (Ekman 1996)
 granosa (Tuck.) Fink (Fink 1935) = Bacidia granosa (Ekman 2014)
 gyalectiformis Zahlbr. = Ramonia gyalectiformis
 gyalizella (Nyl.) Fink (Fink 1935) = Gyalecta gyalizella (Baloch et al. 2013a)
 lignaria (Ach.) A. Massal. (Fink 1935) = Micarea lignaria
 meadii (Tuck.) Fink (Fink 1935) = Byssoloma meadii (Tuck. ex Willey) S. Ekman (Ekman 1996)
 melaena (Nyl.) Arnold (Fink 1935) = Micarea melaena
 molybditis (Tuck.) Fink (Fink 1935) = Bacidia medialis (Ekman 1996)
 naegelii (Hepp) Kremp. (Fink 1935) = Lecania naegelii
 pammellii Fink (Fink 1935) = Bacidia granosa (Ekman 2014)

ravenelii (Tuck.) Fink (Fink 1935) = *Bacidia ravenelii* (Ekman 1996)
 rubidofusca (Willey) Fink (Fink 1935) = *Bacidia rubidofusca* (Ekman 1996)
 rubricosa (Müll. Arg.) Fink (Fink 1935) = *Ophioparma rubricosa* (Ekman 1996)
 sphaeroides (Dickson) Körber (Fink 1935) = *Mycobilimbia pilularis* (Ekman 1996)
 sphaeroides auct. = *Mycobilimbia carneoalbida* (Ekman 1996)
 trachona (Ach.) Trevisan (Fink 1935) North American reports are *Bacidia coprodes* (Llop & Ekman 2004)
 trisepta (Nägeli) Arnold = *Micarea peliocarpa* (Santesson et al. 2004)
 tricholoma (Mont.) Fink = *Byssoloma tricholomum*

BISPORA Fuckel

*christiansenii D. Hawksw. (Alstrup & Cole 1998) = *Intralichen christiansenii*
 *lichenum Diederich (Cole & Hawksworth 2001) = *Intralichen lichenum*

BLASTENIA A. Massal. (Arup et al. 2013)

ammiospila (Wahlenb.) Arup, Søchting & Frödén Syns. *Caloplaca ammiospila*, *C. cinnamomea*, *C. discoidalis*
ferruginea (Hudson) Th. Fr. Syn.: *Caloplaca ferruginea*, *Placodium ferrugineum*
furfuracea (H. Magn.) Arup, Søchting & Frödén Syn.: *Caloplaca furfuracea*
atrosanguinea (G. Merr.) Fink (Fink 1935) = *Caloplaca atrosanguinea*
crenularia (With.) Arup, Søchting & Frödén = misidentification for North America (Wetmore 1996)
diphasia (Tuck.) Zahlbr. = *Caloplaca diphasia*
festiva (Ach.) A. Massal. = *Caloplaca crenularia*, but North American records incorrect according to Wetmore (1996)
floridana (Tuck.) Zahlbr. = *Caloplaca floridana*
fraudans (Th. Fr.) B. de Lesd. = *Caloplaca fraudans*
luteominia (Tuck.) Hasse = *Polycauliona luteominea*
novomexicana Fink = a *Caloplaca* sp.?
rubrofusca B. de Lesd. = a *Caloplaca* sp.?
sinapisperma (DC.) A. Massal. = *Bryoplaca sinapisperma*

BLENNOTHALLIA Trevisan (Otálora et al. 2014)

crispa (Hudson) Otálora, P. M. Jørg. & Wedin Syn.: *Collema cheilum*, *C. crispum*
fecunda (Degel.) Otálora, P. M. Jørg. & Wedin Syn.: *Collema fecundum*

BOGORIELLA Zahlbr.

socialis (Zahlbr.) Aptroot & Lücking (Aptroot & Lücking 2016)

BOMBYLIOSPORA De Not. ex A. Massal. = MEGALOSPORA

domingensis (Pers.) Zahlbr. = *Letroutia domingensis*
pachycheila (Tuck.) Zahlbr. = *Megalospora pachycheila*
porphyritis (Tuck.) A. Massal. = *Megalospora porphyritis*
tuberculosa (Fée) De Not. = *Megalospora tuberculosa*
vulpina (Nyl.) J. M. Burgess = nom. inval. = *Letroutia vulpina*

BOTRYDINA Bréb. = LICHENOMPHALIA

botryoides (L.) Redhead & Kuyper = *Lichenomphalia umbellifera*
luteovitellina (Pilát & Nannf.) Redhead & Kuyper = *Lichenomphalia alpina*
velutina (Quélet) Redhead & Kuyper = *Lichenomphalia velutina*
viridis (Ach.) Redhead & Kuyper = *Lichenomphalia hudsoniana*
vulgaris Bréb. sens. str. = *Lichenomphalia umbellifera*

BOTRYOLEPRARIA Canals, Hernández-Mariné, Gómez-Bolea & Llimona

lesdainii (Hue) Canals, Hernández-Mariné, Gómez-Bolea & Llimona Syn.: *Lepraria lesdainii* (Canals et al. 1997)

BOTTARIA A. Massal. = **MYCOPORUM** Flotow ex Nyl.
cruentata Müll. Arg. = *Pyrenula cruentata*

BRACKELIA Zhurb.

***lunkei** Zhurb. (Zhurbenko & Pino-Bodas 2017)

BRIANARIA S. Ekman & M. Svensson (Ekman & Svensson 2014)

bauschiana (Körber) S. Ekman & M. Svensson Syns.: *Lecidea dilutiuscula*, *L. lynceola* auct. N. Am.,
Micarea bauschiana

lutulata (Nyl.) S. Ekman & M. Svensson Syns.: *Lecidea lutulata*, *Micarea lutulata*

sylvicola (Flotow ex Körber) S. Ekman & M. Svensson Syns.: *Lecidea sylvicola*, *Micarea sylvicola*

tuberculata (Sommerf.) S. Ekman & M. Svensson Syn.: *Micarea tuberculate*

BRIANCOPPINSIA Diederich, Ertz, Lawrey & van den Boom (Diederich et al. 2012)

***cytospora** (Vouaux) Diederich, Ertz, Lawrey & van den Boom (Diederich et al. 2012, Kocourková et al. 2012) Syn.: *Phoma cytospora*

BRIGANTIAEA Trevisan

fuscolutea (Dickson) R. Sant. Syn.: *Lopadium fuscoluteum*

leucoxantha (Sprengel) R. Sant. & Hafellner Syn.: *Lopadium leucoxanthum*, *Heterothecium leucoxanthum*

praetermissa Hafellner & St. Clair (Hafellner 1997)

purpurata (Zahlbr.) Hafellner & Bellem. (Goward et al. 1996) = *B. praetermissa* (Hafellner 1997)

BRODOA Goward

oroarctica (Krog) Goward Syn.: *Hypogymnia oroarctica*.

atrofusca (Schaerer) Goward Syns.: *Hypogymnia atrofusca*, *Parmelia atrofusca*. North American reports are probably misidentifications of *Brodoa oroarctica*

intestiniformis (Vill.) Goward Syns.: *Hypogymnia intestiniformis*, *H. encausta*, *Parmelia*

intestiniformis, *P. encausta*. North American reports are misidentifications of *Brodoa oroarctica*

BRUCEA Rikkinen (Rikkinen 2003b) = **BRUCEOMYCES** Rikkinen (Tuovila et al. 2012)

⁺**castoris** Rikkinen = *Bruceomyces castoris*

BRUCEOMYCES Rikkinen (Tuovila et al. 2012)

⁺**castoris** Rikkinen

BRYOBILIMBIA Fryday, Printzen & S. Ekman (Fryday et al. 2014)

ahlesii (Körber) Fryday, Printzen & S. Ekman Syns.: *Lecidea ahlesii*, *L. delincta*

ahlesii var. **nemoralis** (J. Lowe) Fryday, Printzen & S. Ekman Syns.: *Lecidea ahlesii* var. *nemoralis*,
L. nemoralis

diapensiae (Th. Fr.) Fryday, Printzen & S. Ekman Syn.: *Lecidea diapensiae*

hypnorum (Lib.) Fryday, Printzen & S. Ekman Syns.: *Lecidea hypnorum*, *L. fusca*, *L. templetonii*, *L. atrofusca*, *L. sanguineoatra* sens. Nyl., *Mycobilimbia hypnorum*

BRYOCAULON Kärnefelt

divergens (Ach.) Kärnefelt Syns.: *Alectoria divergens*, *Cornicularia divergens*, *Coelocaulon divergens*

pseudosatoanum (Asahina) Kärnefelt Syn.: *Cornicularia pseudosatoana*

BRYODINA Hafellner

rhypariza (Nyl.) Hafellner & Türk (Zhurbenko 2013)

BRYONORA Poelt

castanea (Hepp) Poelt Syn.: *Lecanora castanea*

curvescens (Mudd) Poelt Syn.: *Lecania curvescens*

pruinosa (Th. Fr.) Holtan-Hartwig
septentrionalis Holtan-Hartwig

BRYOPHAGUS Nitschke ex Arnold

gloeocapsa Nitschke ex Arnold (fide J. Hafellner, see Appendix) = *Cryptodiscus gloeocapsa*

BRYOPLACA Søchting, Frödén & Arup (Arup et al. 2013)

jungermanniae (Vahl) Søchting, Frödén & Arup Syn.: *Caloplaca jungermanniae*

sinapisperma (Lam. & DC.) Søchting, Frödén & Arup Syns.: *Blastenia sinapisperma*, *Caloplaca leucoraea*, *C. sinapisperma*

tetraspora (Nyl.) Søchting, Frödén & Arup Syn.: *Caloplaca tetraspora*

BRYOPOGON Link

negativus Gyelnik = *Bryoria fuscescens*

pacificus Gyelnik = *Bryoria fuscescens*

BRYORIA Brodo & D. Hawksw.

alaskana Myllys & Goward (Myllys et al. 2016)

ambigua (Motyka) Bystr. & Fabiszewski Syn.: *Alectoria ambigua* (Bystrek & Fabiszewski 1998)

americana (Motyka) Holien Syn.: *Alectoria americana* (Holien 1994, Myllys et al. 2011)

bicolor (Ehrh.) Brodo & D. Hawksw. Syn.: *Alectoria bicolor*

carlottae Brodo & D. Hawksw.

cervinula Motyka ex Brodo & D. Hawksw. Syn.: *Alectoria cervinula*

fabiszewskiana Bystr. (Bystrek & Fabiszewski 1998)

fremontii (Tuck.) Brodo & D. Hawksw. Syns.: *Alectoria fremontii*, *A. corneliae*, *A. tenerrima*, *A. tortuosa*

friabilis Brodo & D. Hawksw. (Velmala et al. 2014)

furcellata (Fr.) Brodo & D. Hawksw. Syns.: *Alectoria nidulifera*, *Cornicularia fibrillosa*

furcellata subsp. **hawksworthiana** Bystr. & Fabiszewski (Bystrek & Fabiszewski 1998)

fuscescens (Gyelnik) Brodo & D. Hawksw. Syns.: *Alectoria fuscescens*, *A. positiva*, *Bryopogon pacificus*

glabra (Motyka) Brodo & D. Hawksw. Syn.: *Alectoria glabra*

inactiva Goward, Velmala & Myllys (Velmala et al. 2014)

irwinii Goward & Myllys (Myllys et al. 2016)

kockiana Velmala, Myllys & Goward (Velmala et al. 2014)

nadvornikiana (Gyelnik) Brodo & D. Hawksw. Syns.: *Alectoria nadvornikiana*, *A. altaica*

nitidula (Th. Fr.) Brodo & D. Hawksw. Syns.: *Alectoria nitidula*, *A. irvingii*, *A. lanea* auct.

pikei Brodo & D. Hawksw. Syns.: *Alectoria cana*, North American reports of *A. capillaris* & *A. setacea*

pseudofuscescens (Gyelnik) Brodo & D. Hawksw. Syns.: *Alectoria achariana*, *A. norstictica* nom. inval., *A. subtilis* nom. inval. (Velmala et al. 2014)

salazinica Brodo & D. Hawksw.

simplicior (Vainio) Brodo & D. Hawksw. Syns.: *Alectoria simplicior*, *A. nana* nom. nudum

tenuis (E. Dahl) Brodo & D. Hawksw. Syn.: *Alectoria tenuis*

trichodes (Michaux) Brodo & D. Hawksw. subsp. **trichodes** Syns.: *Alectoria canadensis*, *A. delicata* nom. nudum

trichodes subsp. **brodoana** Bystr. & Fabiszewski (Bystrek & Fabiszewski 1998)

trichodes subsp. **canadensis** (Motyka) Bystr. & Fabiszewski (Bystrek & Fabiszewski 1998)

vrangiana (Gyelnik) Brodo & D. Hawksw. (Velmala et al. 2014)

abbreviata (Müll. Arg.) Brodo & D. Hawksw. = *Nodobryoria abbreviata*

capillaris (Ach.) Brodo & D. Hawksw. A European species; North American records are *B. pikei* (Velmala et al. 2014)

chalybeiformis (L.) Brodo & D. Hawksw. = *B. fuscescens* (Velmala et al. 2014)

implexa (Hoffm.) Brodo & D. Hawksw. A European species; North American records are *B. kockiana*

lanestris (Ach.) Brodo & D. Hawksw. = *B. fuscescens* (Velmala et al. 2014)

oregana (Tuck. ex Willey) Brodo & D. Hawksw. = *Nodobryoria oregana*

pseudocapillaris Brodo & D. Hawksw. = Sulcaria spiralifera (Myllys et al. 2014)
 setacea (Ach.) Brodo & D. Hawksw. Not in North America.
 spiralifera Brodo & D. Hawksw. = Sulcaria spiralifera (Myllys et al. 2014)
 subcana (Nyl. ex Stizenb.) Brodo & D. Hawksw. = B. fuscescens (Velmala et al. 2014)
 subdivergens (E. Dahl) Brodo & D. Hawksw. = Nodobryoria subdivergens
 tortuosa (G. Merr.) Brodo & D. Hawksw. = B. fremontii (Velmala et al. 2009)
 trichodes subsp. americana (Motyka) Brodo & D. Hawksw. = B. americana (Myllys et al. 2011)

BRYOSCYPHUS Spooner

***lichenicola** Alstrup & M. S. Cole (Alstrup & Cole 1998)

BRYOSTIGMA Poelt & Döbbeler

muscigenum (Th. Fr.) Frisch & G. Thor Syn.: Arthonia muscigena, A. leucodontis (Frisch et al. 2014)
 leucodontis Poelt & Döbbeler = Bryostigma muscigenum

BUELLIA De Not.

abstracta (Nyl.) H. Olivier (Giralt et al. 2011, Knudsen & Kocourková 2010c)
aethalea (Ach.) Th. Fr.
arborea Coppins & Tønsberg (Tønsberg & McCune 2001)
arnoldii Servit Syn.: Hafellia arnoldii
 #**badia** (Fr.) A. Massal. Syn.: Amandinea turgescens
bahiana Malme Syn.: Hafellia bahiana
bahiana var. **pleiotropa** Malme
bolacina Tuck.
calcariaecola B. de Lesd.
callispora (C. Knight) J. Steiner Syn.: Hafellia callispora
capitis-regum W. A. Weber
cedricola Werner (Nordin 1999)
christophii Bungartz (Bungartz et al. 2004a)
circumpallida H. Magn. Syn.: Endohyalina circumpallida
concinna Th. Fr. (Bungartz et al. 2004b)
conspirans (Nyl.) Vainio (Bungartz 2004)
crystallifera (Vainio) Hav. (Goward et al. 1996)
curatellae Malme Syn.: Hafellia curatellae
disciformis (Fr.) Mudd Syn.: Hafellia disciformis
dispersa A. Massal.
eganii Bungartz (Bungartz & Nash. 2004a)
elegans Poelt
elizae (Tuck.) Tuck. Syn.: Gassicurtia elizae (Lendemer et al. 2013)
epigaea (Hoffm.) Tuck.
erubescens Arnold
 [Hafellia **fosteri** Imshaug & Sheard]
georgei Trinkaus, H. Mayrhofer & Elix (Bungartz et al. 2007)
griseovirens (Turner & Borrer ex Sm.) Almb.
halonia (Ach.) Tuck.
immersa Lynge
 ***imshaugii** Hafellner
jugorum (Arnold) Arnold
lacteoidea B. de Lesd.
lepidastra (Tuck.) Tuck. Syn.: Lecidea lepidastra
leptocline (Flotow) A. Massal.
maculata Bungartz (Bungartz 2004a)
mamillana (Tuck.) W. A. Weber Syn.: Rinodina mamillana, R. thomae
maritima (A. Massal.) Bagl. (Bungartz et al. 2007)
mexicana J. Steiner (Nordin 2000)
microbola (Tuck. ex Fink) Sheard Syn.: Rinodina microbola

#miriquidica Scheid. (Fryday 2006)
muriformis A. Nordin & Tønsberg (Nordin 1999)
nantiana B. de Lesd.
nashii Bungartz (Bungartz 2004)
navajoensis Bungartz (Bungartz 2004)
nigra (Fink) Sheard Syn.: *Rinodina nigra*
occidentalis Lynge (Lepage 1972)
ocellata (Flotow) Körber
oidalea (Nyl.) Tuck. Syn.: *Rhizocarpon oidaleum*
parastata (Nyl.) Zahlbr. Syn.: *Hafellia parastata*
pleiotera Malme Syn.: *Hafellia pleiotera*
prospersa (Nyl.) Riddle (Bungartz et al. 2004b)
pullata Tuck. (Bungartz et al. 2004b)
ryanii Bungartz (Bungartz et al. 2004b)
schaereri De Not.
sequax (Nyl.) Zahlbr. (Bungartz et al. 2004b) Many previous reports are *B. abstracta* (Giralt et al. 2011)
sharpiana Lendemer & R. C. Harris (Lendemer & Harris 2013a)
silicicola B. de Lesd.
smaragdula B. de Lesd.
spuria (Schaerer) Anzi
stellulata (Taylor) Mudd
stigmatea Körber
subaethalea B. de Lesd. (Bungartz & Nash 2004a)
subdispersa Mig. (Nordin 1999)
tesserata Körber (Rico et al. 2003)
triseptata A. Nordin (Nordin 1999)
tyrolensis Körber (Bungartz 2004)
uberior Anzi
vernicoma (Tuck.) Tuck. Syn.: *Gassicurtia vernicoma*
vilis Th. Fr.
 *adjuncta Th. Fr. (Esslinger & Egan 1995) = *Amandinea adjuncta*
aethaleoides (Nyl.) H. Olivier = *B. aethalea*
alboatra (Hoffm.) Th. Fr. = *Diplotomma alboatrum*
ambigua (Ach.) Malme = *Diplotomma ambiguum*
amphidexia Imshaug ex R. C. Harris = *Buellia circumpallida*
atrata (Sm.) Anzi = *Orphniospora moriopsis*
badioatra (Flörke ex Sprengel) Körber = *Rhizocarpon badioatrum*
blasteniospora Zahlbr. = *B. parastata*
blumeri Zahlbr. = *B. dispersa*
caloosensis Tuck. = *Gassicurtia catasema*
canescens (Dickson) De Not. = *Diploicia canescens*
catasema (Tuck.) Tuck. = *Gassicurtia catasema*
chloroleuca Körber (Bungartz et al. 2007, Spribille & Björk 2008) = *Tetramelas chloroleucus*
chlorophaea (Hepp ex Leighton) Lettau = *Diplotomma chlorophaeum*
coccinea (Fée) Aptroot = *Gassicurtia coccinea*
colludens (Nyl.) Arnold = *Rhizocarpon hochstetteri*
coniops (Wahlenb.) Th. Fr. = *Amandinea coniops*
contermina Arnold = *B. uberior*
coracina (Nyl.) Körber = *Orphniospora moriopsis*
curtisii (Tuck.) Imshaug = *Baculifera curtisii*
dakotensis (H. Magn.) Bungartz = *Amandinea dakotensis*
dialyta (Nyl.) Tuck. = *Chriskofulvea dialyta*
epipolia sensu auct. = *Diplotomma venustum* (Nordin 1996, McCune 2017)
epipolia (Ach.) Mong. = *Diplotomma alboatrum* (Nordin 1996, McCune 2017)
fimbriata (Tuck.) Imshaug = *B. tesserata*

geographica (L.) Tuck. = *Rhizocarpon geographicum*
 geophila (Flörke ex Sommerf.) Lynge = *Tetramelas geophila*, but North American reports are *T. terricolus*
 glaucomarioidea Willey ex Tuck. = *Dactylospora glaucomarioides*
 glaziouana (Kremp.) Müll. Arg. = *B. mamillana*
 hassei Imshaug = *B. griseovirens*
 imshaugiana R. C. Harris = *Baculifera imshaugiana*
 *inquilina Tuck. = *Dactylospora inquilina*
 insignis (Nägeli ex Hepp) Th. Fr. = *Tetramelas insignis*
 isidians (Nyl.) Zahlbr. = excluded as doubtful
 japonica (Tuck.) Tuck. (Sheard et al. 2008) = *Sculptolumina japonica*
 langloisii Imshaug = *Amandinea langloisii* (Marbach 2000)
 lauricassiae (Fée) Müll. Arg. = *Cratiria lauricassiae*
 lecanoroides H. Magn. = *Diplotomma venusta* (Bungartz et al. 2007)
 lepidastroidea Imshaug ex Bungartz (Bungartz 2004) = *B. sequax* (Giralt et al. 2011)
 leucomela Imshaug = *Amandinea leucomela*
 malmei Lynge = *B. aethalea*
 melanochlora (Kremp.) Müll. Arg. = *Cratiria melanochlora*
 modesta (Kremp.) Müll. Arg. = *Cratiria americana*
 moriopsis (A. Massal.) Th. Fr. = *Orphniospora moriopsis*
 myriocarpa (DC.) De Not. = *Amandinea punctata*
 nivalis (Bagl. & Carestia) Hertel ex Hafellner = *Diplotomma nivalis*
 notabilis Lynge = *Rinodina notabilis*
 novomexicana B. de Lesd. = *B. tyrolensis*
 pachnidisca R. C. Harris = *Gassicurtia subpulcella*
 papillata (Sommerf.) Tuck. = *Tetramelas papillatus*
 parasema (Ach.) De Not. = *B. disciformis*
 penichra (Tuck.) Hasse = *Diplotomma penichrum*
 pertusariicola Willey ex Tuck. = *Dactylospora pertusariicola*
 pinastri Erichsen (Erichsen 1940) = *Chrimofulvea pinastri*
 placodiomorpha Vainio = *Orcularia placodiomorpha*
 polyspora (Willey) Vainio = *Amandinea polyspora*
 pruinella Imshaug = *B. tesserata*
 pueblae B. de Lesd. = *B. dispersa*
 pulchella (Schrader) Tuck. = *Catolechia wahlenbergii*
 *pulverulenta (Anzi) Jatta = *Tetramelas pulverulentus*
 punctata (Hoffm.) A. Massal. = *Amandinea punctata*
 punctata var. polyspora (Willey) Fink = *Amandinea polyspora*
 radiata Tuck. = *Dimelaena radiata*
 rappii Imshaug ex R.C. Harris = *Endohyalina rappii*
 retrovertens Tuck. = *B. dispersa* (Bungartz et al. 2002)
 rinodinoides Anzi = misidentification for North America
 rinodinospora Riddle = *B. parastata*
 rubifaciens R.C. Harris = *Chrimofulvea rubifaciens*
 saurina W. A. Weber = *Rhizocarpon saurinum*
 saxicola B. de Lesd. = *B. sequax*
 scabrosa (Ach.) A. Massal. = *Epilichen scabrosus*
 semitensis Tuck. = *B. concinna*
 stigmaea Tuck. = *B. maculata*
 stillingiana J. Steiner = *B. erubescens* (Bungartz et al. 2007)
 subalbula (Nyl.) Müll. Arg. North American reports are *B. maritima* (Bungartz et al. 2007)
 subdisciformis (Leighton) Jatta (Mohr 1901) = *B. disciformis*
 subpostumum Nyl. (Mohr 1901) = *Rhizocarpon subpostumum*, but a misidentification for North America
 subpulcella Vainio = *Gassicurtia subpulcella*
 tergestina J. Steiner & Zahlbr. = *B. dispersa*

terricola A. Nordin (Nordin 1999) = *Tetramelas terricolus*
 thomae (Tuck.) Imshaug = *B. mamillana*
 tolucae B. de Lesd. (Nordin 1999) = *B. mexicana* (Bungartz et al. 2007)
 triphragmioides Anzi = *Tetramelas triphragmioides*
 tucsonensis Zahlbr. = *B. dispersa* (Bungartz et al. 2007)
 turgescens Tuck. = *B. badia* (Bungartz & Nash 2004c)
 turgescensoides Fink = *B. badia* (Bungartz & Nash 2004c)
 venusta (Körber) Lettau = *Diplotomma venustum*
 verruculosa (Sm.) Mudd = *B. aethalea*
 verruculosa auct. = *B. ocellata*
 wahlenbergii (Ach.) Sheard = *Catolechia wahlenbergii*
 wheeleri R. C. Harris = *Ciposia wheeleri*
 zahlbruckneri J. Steiner = *B. erubescens*
 zahlbruckneri sensu Imshaug = mostly *Tetramelas chloroleucus* (Bungartz et al. 2007)

BUELLIELLA Fink

***inops** (Triebel & Rambold) Hafellner Syn.: *Karschia inops* (Hafellner 2004a)
 ***minimula** (Tuck.) Fink
 ***physciicola** Poelt & Hafellner (Esslinger & Egan 1995)
 ***poetschii** Hafellner (Hafellner et al. 2008)
 ***trypethelii** (Tuck.) Fink
 *inquilina (Tuck.) Fink = *Dactylospora inquilina*
 *nuttallii (Calk. & Nyl.) Fink = *Dactylospora lobariella*
 *parmeliarum (Sommerf.) Fink = *Abrothallus parmeliarum*
 *saxatilis (Schaerer) Fink = *Dactylospora saxatilis* var. *saxatilis*
 *usneae (Rabenh.) Fink = misidentification for North America

BUELLIOPSIS A. Schneider = **BUELLIA**

papillata (Sommerf.) Fink = *Tetramelas papillata*
 vernicoma (Tuck.) A. Schneider = *Buellia vernicoma*

BULBOTHRIX Hale

confoederata (W. L. Culb.) Hale Syn.: *Parmelia confoederata*
coronata (Fée) Hale Syn.: *Parmelia coronata*
isidiza (Nyl.) Hale
laevigatula (Nyl.) Hale Syn.: *Parmelia laevigatula*
scortella (Nyl.) Hale (Benatti & Elix 2012) Syn.: *Parmelia njalensis*, *P. scortella*
 goebelii (Zenker) Hale North American reports are *B. scortella* (Benatti & Elix 2012)

BULLATINA Vězda & Poelt

aspidota (Vainio) Vězda & Poelt = *Calenia aspidotum*

BUNODOPHORON A. Massal.

melanocarpum (Sw.) Wedin Syn.: *Sphaerophorus melanocarpus*

BURGELLA Diederich & Lawrey (Diederich & Lawrey 2007)

***flavoparmeliae** Diederich & Lawrey

BYSSOLOMA Trevisan

absconditum Farkas & Vězda (Seavey & Seavey 2012)
chlorinum (Vainio) Zahlbr. (Lücking et al. 2011b)
leucoblepharum (Nyl.) Vainio
maderense Breuss (Breuss 2016)
marginatum (Arnold) Sérus.
meadii (Tuck. ex Willey) S. Ekman Syn.: *Bacidia meadii*, *Biatora meadii*, *Bilimbia meadii*
subdiscordans (Nyl.) P. James

tricholomum (Mont.) Zahlbr. Syn.: Bilimbia tricholoma
pubescens Vězda ex R.C. Harris (Harris 1995a) = B. meadii (Brodo et al. 2001)
rotuliforme (Müll. Arg.) R. Sant. = B. subdiscordans

CAERULEUM K. Knudsen & L. Arcadia (Arcadia & Knudsen 2012)

heppii (Nägeli ex Körber) K. Knudsen & L. Arcadia Syns.: Acarospora aeruginosa, A. heppii,
Myriospora heppii

immersum (Fink) K. Knudsen & L. Arcadia Syns.: Acarospora immersa, Myriospora immerse

CALENIA Müll. Arg.

aspidotum (Vainio) Vězda Syn.: Bullatina aspidota (Lücking et al. 2007)

CALICIELLA Vainio = non-lichenized fungi

CALICIUM Pers.

abietinum Pers.

adpersum Pers.

carolinianum (Tuck.) M. Prieto & Wedin Syns.: Acolium carolinianum, Cyphelium carolinianum,
Thelomma carolinianum (Prieto & Wedin 2017)

chlorosporum F. Wilson

corynellum (Ach.) Ach.

denigratum (Vainio) Tibell (McMullin et al. 2012)

glaucellum Ach.

hyperelloides Nyl.

lenticulare Ach.

leucochlorum Tuck.

lucidum (Th. Fr.) M. Prieto & Wedin Syn.: Cyphelium lucidum (Prieto & Wedin 2017)

montanum Tibell (Kolb & Spribille 2001)

notarisii (Tul.) M. Prieto & Wedin Syn.: Cyphelium notarisii (Prieto & Wedin 2017)

parvum Tibell

pinastri Tibell (Selva 2013)

pinicola (Tibell) M. Prieto & Wedin Syn.: Cyphelium pinicola (Prieto & Wedin 2017)

quercinum Pers.

salicinum Pers.

sequoiae C. Williams & Tibell (Williams & Tibell 2008)

tigillare (Ach.) Pers. Syn.: Cyphelium tigillare (Prieto & Wedin 2017)

trabinellum (Ach.) Ach

viride Pers.

adaequatum Nyl. = Allocalicium adaequatum (Prieto & Wedin 2017)

albonigrum Nyl. = Mycocalicium albonigrum

#asikkalense Vainio = Chaenothecopsis pusilla

curtisii Tuck. = Phaeocalicium curtisii

*disseminatum Ach. = Microcalicium disseminatum

#floerkei Zahlbr. = Chaenothecopsis pusilla

fuscipes Tuck. = Mycocalicium fuscipes

hemisphaericum Howard = Allocalicium adaequatum

hyperellum (Ach.) Ach. = C. viride

lentigerellum Tuck. = C. lenticulare

lichenoides (L.) Schumacher = C. salicinum

melanophaeum Sommerf. (Mohr 1901) = Mycocalicium albonigrum

microcephalum (Sm.) Ach. = Sphinctrina anglica

minutissimum G. Merr. = Phaeocalicium minutissimum

+parietinum Ach. (Claassen 1912) = Mycocalicium subtile

+populneum Brond. ex Duby = Phaeocalicium populneum

#pusillum auct. = Chaenothecopsis pusilla

pusiolum Ach. = Chaenothecopsis pusiola

queenslandiae (F. Wilson) Tibell = *C. chlorosporum*
 ravenelii Tuck. = *Mycocalicium ravenelii*
 roscidum (Ach.) Ach. nom. superfl. = *C. adpersum*
 roscidum var. trabinellum (Ach.) Schaerer = *C. trabinellum* for North American records
 sphaerocephalum (L.) Ach. = (?) *C. lichenoides*
 #subpusillum Vainio = *Chaenothecopsis pusilla*
 subquercinum Asahina = *C. lenticulare*
 +subtile Pers. = *Mycocalicium subtile*
 trachelinum Ach. = *C. salicinum*
 turbinatum Pers. = *Sphinctrina turbinata*

CALLOME Otálora & Wedin (Otálora et al. 2014)

multipartita (Sm.) Otálora, P. M. Jørg. & Wedin Syn.: *Collema multipartitum*

CALOGAYA Arup, Frödén & Söchting (Arup et al. 2013)

arnoldii (Wedd.) Arup, Frödén & Söchting Syn.: *Caloplaca arnoldii*, *C. arnoldii* subsp. *obliterata*
biatorina (A. Massal.) Arup, Frödén & Söchting Syn.: *Caloplaca biatorina*
bryochryson (Poelt) Vondrák Syns.: *Caloplaca alaskensis*, *C. bryochryson* (Vondrák et al. 2016)
decipiens (Arnold) Arup, Frödén & Söchting Syn.: *Caloplaca decipiens*
lobulata (Flörke) Arup, Frödén & Söchting Syn.: *Caloplaca lobulata*
pusilla (A. Massal.) Arup, Frödén & Söchting Syn.: *Caloplaca pusilla*
alaskensis (Wetmore) Arup, Frödén & Söchting = *C. bryochryson* (Vondrák et al. 2016)

CALOPADIA Vězda

editae Vězda ex Chaves & Lücking (Lücking et al. 2011b)
floridana Hodges & Lücking (Lücking et al. 2011b)
fusca (Müll Arg.) Vězda Syn.: *Lopadium fuscum*
imshaugii Common & Lücking (Lücking et al. 2011b)
lecanorella (Nyl.) Kalb & Vězda (Lücking et al. 2011b)
perpallida (Nyl.) Vězda (Lücking et al. 2011b)
puiggarii (Müll. Arg.) Vězda Syn.: *Lopadium puiggarii*
schomerae F. Seavey & J. Seavey (Seavey & Seavey 2011)
subcoerulescens (Zahlbr.) Vězda (Lücking et al. 2011b)

CALOPLACA Th. Fr.

adnexa Vězda
ahtii Söchting
albovariegata (B. de Lesd.) Wetmore Syn.: *Pyrenodesmia albovariegata*
alcarum Poelt
approximata (Lynge) H. Magn.
atroalba (Tuck.) Zahlbr. Syn.: *Lecania perproxima* (van den Boom & Ryan 2004b)
atrocyanescens (Th. Fr.) H. Olivier (Spribille et al. 2010)
atroflava (Turner) Mong.
atrosanguinea (G. Merr.) I. M. Lamb Syns.: *Blastenia atrosanguinea*, *Lecanora atrosanguinea*
borealis (Vainio) Poelt
brouardii (B. de Lesd.) Zahlbr. (Nash et al. 1998)
brunneola Wetmore
californica Zahlbr.
camptidia (Tuck.) Zahlbr.
carolinae H. Magn.
cascadensis H. Magn.
catalinae H. Magn.
celata Th. Fr.
cerina (Ehrh. ex Hedwig) Th. Fr. (Laundon 2005)
chlorina (Flotow) Sandst.
cinnabarina (Ach.) Zahlbr.

conversa (Kremp.) Jatta
dakotensis Wetmore
demissa (Körber) Arup & Grube Syns.: *Lecanora demissa*, *L. incusa*, *L. subolivascens* (Arup & Grube 1999)
diphasia (Tuck.) Wetmore Syns.: *Lecanora diphasia*, *Blastenia diphasia*
diphyodes (Nyl.) Jatta Syn.: *Lecania arctica*
dispersa B. de Lesd.
durietzii H. Magn
epiphora (Taylor) C. W. Dodge (Wetmore 2004a)
***epithallina** Lynge
erichansenii S. Y. Kondr., A. Thell, Kärnefelt & Elix (Vondrák et al. 2011)
erythrantha (Tuck.) Zahlbr. (Wetmore 2007b)
eugyra (Tuck.) Zahlbr.
exsecuta (Nyl.) Dalla Torre & Sarnth.
ferrugineofusca (Vainio) H. Magn.
floridana (Tuck.) S. Tucker Syns.: *Blastenia floridana*, *Lecanora floridana*
fraudans (Th. Fr.) H. Olivier Syn.: *Blastenia fraudans*
fraxinea I. M. Lamb
fulvolutea (Arnold) Jatta (Thomson 1997)
granularis (Müll. Arg.) Zahlbr. (Wetmore 2004b)
***grimmiae** (Nyl.) H. Olivier
groenlandica Lynge
insularis Poelt
isidiigera Vězda (Šoun et al. 2011)
kamczatica (Savicz) Savicz (Søchting 2004)
***lecanorae** F. Seavey & J. Seavey (Seavey & Seavey 2012)
lecanoroides Lendemer (Lendemer et al. 2010)
lignicola Wetmore (Wetmore 2009)
lithophila H. Magn.
litoricola Brodo
livida (Hepp) Jatta
microphyllina (Tuck.) Hasse Syn.: *Placodium microphyllum*
[Pyrenodesmia montana B. de Lesd.]
neonii B. de Lesd.
neotropica Wetmore
nivalis (Körber) Th. Fr.
[Blastenia novomexicana Fink]
obamae K. Knudsen (Knudsen 2009)
obesimarginata Søchting (Søchting 2004)
oblongula (H. Magn.) Wetmore Syns.: *Apatopla oblongula*, *Lecidea oblongula*
obscura (J. Lahm) Th. Fr.
oleicola (J. Steiner) van den Boom & Breuss (Goward et al. 1996)
oregona H. Magn.
parvula Wetmore
phyllophylla (Tuck.) Zahlbr.
pellodella (Nyl.) Hasse Syn.: *Pyrenodesmia elaeodes*
phaeocarpella (Nyl.) Zahlbr.
phyllidizans Wetmore (Wetmore 2003)
pinicola H. Magn.
pollinii (A. Massal.) Jatta
pratensis Wetmore (Wetmore 2009)
pygmaea Wetmore (Wetmore 2007a)
quercicola H. Magn.
reptans Lendemer & Hodkinson (Hodkinson & Lendemer 2012)
rubelliana (Ach.) Lojka
[Blastenia rubrofusca B. de Lesd.]

saxicola (Hoffm.) Nordin
schaereri (Flörke) Zahlbr.
schoeferi Poelt (Wetmore 2007a)
sibirica H. Magn. (Søchting & Olech 1995)
sideritis (Tuck.) Zahlbr.
sipeana H. Magn.
sonorae Wetmore (Wetmore 1996)
soralifera Vondrák & Hrouzek (Wetmore 2009)
sorocarpa (Vainio) Zahlbr.
spaldingii Zahlbr.
spitsbergensis H. Magn.
stanfordensis H. Magn.
stillicidium (Vahl) Lynge (Šoun et al. 2011, Arup et al. 2013)
subnitida (Malme) Zahlbr.
subpyraceella (Nyl.) Zahlbr.
tornoënsis H. Magn.
turkuensis (Vainio) Zahlbr. (Šoun et al. 2011)
ulcerosa Coppins & P. James (Wetmore 2004b)
ulmorum (Fink) Fink (Šoun et al. 2011) But see also Wetmore 2007b
urceolata B. de Lesd.
verrucosa Hasse
wetmorei Nimis, Poelt & Tretiach
wrightii (Tuck.) Fink
yuchiorum Lendemer & C. A. Morse (Lendemer & Morse 2010)
 alaskensis Wetmore (Wetmore 2004b) = Calogaya bryochryson (Vondrák et al. 2016)
 alboatra (Tuck.) Zahlbr. (Flowers 1953/1954) Misspelling of C. atroalba
 amabilis (Fink) Zahlbr. = C. pellodella
 ammiospila (Wahlenb.) H. Olivier = Blastenia ammiospila
 arenaria (Pers.) Müll. Arg. = Rufoplaca arenaria
 arizonica H. Magn. = Gyalolechia epiphyta (Vondrák et al. 2016)
 arizonica E. Rudolph non H. Magn. = C. pellodella
 arnoldii (Wedd.) Zahlbr. subsp. obliterated (Pers.) Gaya (Gaya 2009) = Calogaya arnoldii
 aurantia (Pers.) Hellbom = Variospora aurantia
 aurantiaca (Lightf.) Th. Fr. = Gyalolechia flavorubescens
 austrocitrina Vondrák, Říha, Arup & Søchting (Knudsen & Kocourková 2010e) = Flavoplaca
 austrocitrina
 biatorina (A. Massal.) J. Steiner (Gaya 2009) = Calogaya biatorina
 bolacina (Tuck.) Herre = Polycauliona bolacina
 bolanderi (Tuck.) H. Magn. = Polycauliona luteominea var. bolanderi
 bracteata (Hoffm.) Jatta = Gyalolechia bracteata
 brattiae W. A. Weber = Polycauliona brattiae
 bryochryson Poelt = Gyalolechia bryochryson (Vondrák et al. 2016)
 caesiorufa (Wibel) Flagey = removed as a nomen confusum (Wetmore 1996)
 caesiorufella (Nyl.) Zahlbr. = C. phaeocarpella
 callopisma (Ach.) Th. Fr. = Variospora aurantia
 castellana (Räsänen) Poelt If treated as separate from C. invadens (=Pachypeltis invadens) as done by
 e.g. Alstrup (1991), this species has not yet been reported for North America
 cerinelloides (Erichsen) Poelt (Qian & Klinka 1998) = Athallia cerinelloides
 chrysodeta (Vainio) Dombr. = Leproplaca chrysodeta
 chrysophthalma Degel. = Solitaria chrysophthalma
 cinnamomea (Th. Fr.) H. Olivier = Blastenia ammiospila
 cirrochroa (Ach.) Th. Fr. = Leproplaca cirrochroa
 citrina (Hoffm.) Th. Fr. = Flavoplaca citrina
 cladodes (Tuck.) Zahlbr. = Pachypeltis cladodes
 constipans (Nyl.) Zahlbr. = Edrudia constipans
 coralloides (Tuck.) Hulting = Polycauliona coralloides

crenularia (With.) J. R. Laundon = *Blastenia crenularia*, but a misidentification for North America (Wetmore 1996)
 crenulatella (Nyl.) H. Olivier (Knudsen & La Doux 2005) = *Xanthocarpia crenulatella*
 decipiens (Arnold) Blomb. & Forssell = *Calogaya decipiens*
 diplacia (Ach.) Riddle = doesn't occur N of Mexico (Wetmore 1994)
 discernenda (Nyl.) Zahlbr. = *C. saxicola*
 discoidalis (Vainio) Lynge = *Blastenia ammiospila*
 discolor (Willey) Fink = *Gyalolechia xanthostigmoidea* (Wetmore 2001, Arup et al. 2013)
 elegans (Link) Th. Fr. = *Rusavskia elegans*
 epiphyta Lynge (Søchting & Tønsberg 1997) = *Gyalolechia epiphyta* (Vondrák et al. 2016)
 erythrella (Ach.) Kieffer = *Gyalolechia flavovirescens*
 feracissima H. Magn. = *Xanthocarpia feracissima*
 ferruginea (Hudson) Th. Fr. = *Blastenia ferruginea*
 festiva (Ach.) Zwackh = *Caloplaca crenularia*, but North American records incorrect according to Wetmore (1996)
 flavocitrina (Nyl.) H. Olivier (Arup 2006) = *Flavoplaca flavocitrina*
 flavogranulosa Arup = *Polycauliona flavogranulosa*
 flavorubescens (Hudson) J. R. Laundon = *Gyalolechia flavorubescens*
 flavovirescens (Wulfen) Dalla Torre & Sarnth. = *Gyalolechia flavovirescens*
 fulgens (Sw.) Körber = *Gyalolechia fulgens*
 furfuracea H. Magn. (Wetmore 2004a) = *Blastenia furfuracea*
 galactophylla (Tuck.) Zahlbr. = *Squamulea galactophylla*
 gilva (Hoffm.) Zahlbr. = *C. cerina*
 gloriae sensu Aptroot (1996) non Werner & Llimona = *Polycauliona verruculifera* (Arup 1997)
 granulosa (Müll. Arg.) Jatta = *Flavoplaca granulosa*
 herbidella (Hue) H. Magn. = *Blastenia herbidella*, but a misidentification for North America (Wetmore 2004a)
 herrei Hasse = *C. atrosanguinea*
 holocarpa (Hoffm. ex Ach.) A. E. Wade = *Athallia holocarpa*
 ignea Arup = *Polycauliona ignea*
 impolita Arup = *Polycauliona impolita*
 inconspicua Arup = *Polycauliona inconspicua*
 intermedia (B. de Lesd.) Zahlbr. = *C. cinnabarina* (Wetmore & Kärnefelt 1999)
 invadens Lynge (Thomson 1997) = *Pachypeltis invadens*
 irubescens (Arnold) Zahlbr. = *Squamulea subsoluta*
 jungermanniae (Vahl) Th. Fr. = *Bryoplaca jungermanniae*
 lactea (A. Massal.) Zahlbr. = *Xanthocarpia lactea*
 laeta H. Magn. = *Polycauliona luteominia* var. *luteominia*
 lamprocheila (DC.) Flagey = *Rufoplaca arenaria*
 leucoraea (Ach. ex Flörke) Branth = *Bryoplaca sinapisperma*
 lobulata (Flörke) B. de Lesd. = *Calogaya lobulata*
 ludificans Arup = *Polycauliona ludificans*
 luteoalba (Turner) Th. Fr. = *Cerothallia luteoalba*
 luteominia (Tuck.) Zahlbr. var. *luteominia* = *Polycauliona luteominia* var. *luteominia*
 luteominia var. *bolanderi* (Tuck.) Arup = *Polycauliona luteominia* var. *bolanderi*
 marina (Wedd.) Zahlbr. subsp. *americana* Arup = *Flavoplaca marina*
 marmorata (Bagl.) Jatta (Knudsen & La Doux 2005) = *Xanthocarpia marmorata*
 microthallina (Wedd.) Zahlbr. = *Flavoplaca microthallina*
 modesta (Zahlbr.) Fink = *Squamulea subsoluta*
 murorum (Hoffm.) Th. Fr. = *C. saxicola*
 nashii Nav.-Ros., Gaya & Hladun (Knudsen & La Doux 2005) = *Polycauliona nashii*
 obliterans (Nyl.) Blomb. & Forssell = *Leproplaca obliterans*
 oxfordensis Fink = *Rufoplaca oxfordensis*
 parviloba Wetmore (Wetmore 2003) = *Squamulea parviloba*
 paulsenii (Vainio) Zahlbr. = misidentification for North America
 persimilis Wetmore (Wetmore 2004b) = *Gyalolechia persimilis*

phlogina (Ach.) Flagey (Richardson et al. 2009, Vondrák et al. 2010) = *Polycauliona phlogina*
 pusilla (A. Massal.) Zahlbr. (Gaya 2009) = *Calogaya pusilla*
 pyracea (Ach.) Zwackh (Arup 2009) = *Athallia pyracea*
 rosei Hasse = *Polycauliona rosei*
 sarcopisioides (Körber) Zahlbr. = *C. obscurella*
 saxifragarum Poelt = *Athallia saxifragarum*
 scopularis (Nyl.) Lettau = *Athallia scopularis*
 scotoplaca (Nyl.) H. Magn. = misidentification for North America (Wetmore 1996)
 sinapisperma (Lam. & DC.) Maheu & A. Gillet = *Bryoplaca sinapisperma*
 soorediata (Vainio) Du Rietz = *Rusavskia soorediata*
 splendens (Darb.) Zahlbr. = *Rusavskia elegans*
 squamosa (B. de Lesd.) Zahlbr. = *Squamulea squamosa*
 stantonii W. A. Weber ex Arup = *Gyalolechia stantonii*
 stellata Wetmore & Kärnefelt (Wetmore & Kärnefelt 1998) = *Polycauliona stellata*
 stipitata Wetmore (Wetmore 1999) = *Gyalolechia stipitata*
 submexicana (B. de Lesd.) Zahlbr. = *Candelina submexicana*
 subnigricans H. Magn. = *C. atrosanguinea*
 subolivacea (Th. Fr.) Lynge = *Parvoplaca tirolensis*
 subsoluta (Nyl.) Zahlbr. (Wetmore 2003) = *Squamulea subsoluta*
 teicholyta (Ach.) J. Steiner = misidentification for North America (Wetmore 1996)
 tetraspora (Nyl.) H. Olivier = *Bryoplaca tetraspora*
 texana Wetmore & Kärnefelt (Wetmore & Kärnefelt 1998) = *Wetmoreana texana*
 thallincola (Wedd.) Du Rietz Not in North America
 tirolensis Zahlbr. = *Parvoplaca tirolensis*
 tominii (Savicz) Ahlner (Wetmore 2001) = *Xanthocarpia tominii*
 trachyphylla (Tuck.) Zahlbr. = *Xanthomendoza trachyphylla*
 variabilis (Pers.) Müll. Arg. = *Pyrenodesmia variabilis*
 velana (A. Massal.) Du Rietz = *Variospora velana*
 verruculifera (Vainio) Zahlbr. = *Polycauliona verruculifera*
 vicaria H. Magn. = *C. kamczatica*
 vitellinula (Nyl.) H. Olivier = *Athallia vitellinula*
 xanthostigmoidea (Räsänen) Zahlbr. = *Gyalolechia xanthostigmoidea*

CALOPLACOPSIS (Zahlbr.) B. de Lesd. = **CANDELARIELLA**
 submexicana (B. de Lesd.) B. de Lesd. = *Candelina submexicana*

CALVITIMELA Hafellner (Hafellner & Türk 2001)
aglaea (Sommerf.) Hafellner Syn.: *Lecidea aglaea*, *L. aglaeida* (Hertel & Andreev 2003), *L. shushanii*, *Tephromela aglaea*, *T. aglaeida*
armeniaca (DC.) Hafellner Syn.: *Lecidea armeniaca*, *Tephromela armeniaca*
cuprea Haugan & Timdal (Lendemer & Harris 2016)
melaleuca (Sommerf.) R. Sant. (Spribille et al. 2011, Dillman et al. 2012)
perlata (Haugan & Timdal) R. Sant. (Bendiksby et al. 2015)
talayana (Haugan & Timdal) Andreev (Hodkinson et al. 2009)
testaceoatra (Vainio) Hafellner Syn.: *Lecidea testaceoatra*, *L. arctogena*, *Tephromela testaceoatra*

CAMPYLOTHELIUM Müll. Arg.
 amylosporum (Vainio) R. C. Harris = *Dictyomeridium amylosporum*
 nitidum Zahlbr. = *Astrothelium megaspermum*

CANDELARIA A. Massal.
concolor (Dickson) Stein
fibrosa (Fr.) Müll. Arg.
pacifica M. Westb. & Arup (Westberg & Arup 2011)
 concolor var. *effusa* (Tuck.) G. Merr. & Burnham = *C. concolor* (Lendemer & Westberg 2010)

CANDELARIELLA Müll. Arg.

- aggregata** M. Westb. (Westberg 2007a)
- antennaria** Räsänen
- arctica** (Körber) R. Sant.
- aurella** (Hoffm.) Zahlbr.
- biatorina** M. Westb. (Westberg 2007c)
- blastidiata** Yakovchenko (Yakovchenko et al. 2017)
- borealis** M. Westb. (Westberg 2007b)
- californica** M. Westb. (Westberg 2007a)
- canadensis** H. Magn.
- citrina** B. de Lesd.
- clarkii** E. Tripp & Lendemer (Tripp & Lendemer 2015)
- complanata** M. Westb. (Westberg 2007a)
- coralliza** (Nyl.) H. Magn.
- corviniscalensis** C. A. Morse & M. Westb. (Westberg et al. 2011b)
- deppeanae** M. Westb. (Westberg 2007a)
- efflorescens** R. C. Harris & W. R. Buck
- granuliformis** M. Westb. (Westberg et al. 2011b)
- immarginata** M. Westb. (Westberg 2007a)
- kansuensis** H. Magn. (Westberg 2007a)
- lutella** (Vainio) Räsänen
- minuta** Reichert & Galun (Weber & Wittman 2000)
- placodizans** (Nyl.) H. Magn.
- rosulans** (Müll. Arg.) Zahlbr.
- spraguei** (Tuck.) Zahlbr.
- subdeflexa** (Nyl.) Lettau
- vitellina** (Hoffm.) Müll. Arg.
- xanthostigma** (Ach.) Lettau
- xanthostigmoides** (Müll. Arg.) R. W. Rogers (Lendemer & Westberg 2010)
- athallina (Wedd.) Du Rietz Excluded from North America (Westberg et al. (2011b)
- cerinella (Flörke) Zahlbr. = *C. aurella*
- corallizoides M. Westb. Erroneously listed here; reported only from Mexico (Westberg 2007a)
- crenulata (Wahlenb.) Zahlbr. = *C. arctica*
- deflexa (Nyl.) Zahlbr. = *C. aurella*, but N. American reports are mostly *C. antennaria* (Westberg 2007a)
- dispersa (Räsänen) Hakul. Excluded from North America (Westberg et al. 2011b)
- epixantha auct. = *C. aurella*
- epixantha (Ach.) Sandst. = *Candelariella aurella*
- holophaea (Mont.) Zahlbr. = *Solenopsora holophaea*
- hudsonica Hakul. = *C. canadensis*
- kuusamoensis Räsänen var. *areolata* Hakul. Excluded from North America (Westberg et al. 2011b)
- luteoalba (Turner) Lettau = *Cerothallia luteoalba*
- medians (Nyl.) Sm. North American reports probably refer to *Candelina submexicana*
- plumbea Poelt & Vězda Excluded from North America (Westberg et al. 2011b)
- reflexa (Nyl.) Lettau = misidentification for North America (Westberg et al. 2007)
- stenospora B. de Lesd. Excluded from North America (Westberg et al. 2011b)
- submexicana B. de Lesd. = *Candelina submexicana*
- terrigena Räsänen = *C. citrina* (Westberg 2007a, Westberg 2009)

CANDELINA Poelt

- mexicana** (B. de Lesd.) Poelt
- submexicana** (B. de Lesd.) Poelt Syns.: *Caloplacopsis submexicana*, *Candelariella submexicana*, *Caloplaca submexicana*. North American reports of *Candelariella medians* (Nyl.) Sm. probably belong here.

CANOMACULINA Elix & Hale = **PARMOTREMA** (Blanco et al. 2005)

conferenda (Hale) Elix = Parmotrema conferendum
haitiensis (Hale) Elix = Parmotrema haitiensis
neotropica (Kurok.) Elix = Parmotrema neotropicum
subsumpta (Nyl.) Elix = Parmotrema subsumptum
subtinctoria (Zahlbr.) Elix = Parmotrema subtinctorium

CANOPARMELIA Elix & Hale

alabamensis (Hale & McCull.) Elix (Elix 2001) Syns: Paraparmelia alabamensis, Parmelia alabamensis, Pseudoparmelia alabamensis
amazonica (Nyl.) Elix & Hale Syns.: Parmelia amazonica, Pseudoparmelia amazonica
caroliniana (Nyl.) Elix & Hale Syns.: Parmelia caroliniana, Pseudoparmelia caroliniana
cryptochlorophaea (Hale) Elix & Hale Syns.: Parmelia cryptochlorophaea, Pseudoparmelia cryptochlorophaea
martinicana (Nyl.) Elix & Hale Syns.: Parmelia martinicana, Pseudoparmelia martinicana
salacinifera (Hale) Elix & Hale Syns.: Parmelia salacinifera, Pseudoparmelia salacinifera
texana (Tuck.) Elix & Hale Syns.: Parmelia texana, Pseudoparmelia texana
amabilis Heiman & Elix (Heiman & Elix 1999) = Canoparmelia caroliniana (Lendemer & Ruiz 2015)
crozalsiana (B. de Lesd. ex Harm.) Elix & Hale = Crespoa crozalsiana

CAPRONIA Sacc.

***thamnoliae** Zhurb. (Zhurbenko 2012)
***peltigerae** (Fuckel) D. Hawksw. (Zhurbenko & Laursen 2003) = Knufia peltigerae (Réblová et al. 2013)

CARBACANTHOGRAPHIS Staiger & Kalb (Staiger 2002)

candidata (Nyl.) Staiger & Kalb Syn.: Graphis candidata (Staiger 2002)
marcescens (Fée) Staiger & Kalb Syn.: Graphina marcescens, G. plittii, Graphis marcescens (Staiger 2002)
muriformis E. Tripp & Lendemer (Tripp et al. 2010)

CARBONEA (Hertel) Hertel

***aggregantula** (Müll. Arg.) Diederich & Triebel (Goward et al. 1996)
assimilis (Körber) Hafellner & Hertel Syn.: Lecidea assimilis
atronivea (Arnold) Hertel Syn.: Lecidea atronivea
***intrudens** (H. Magn.) Hafellner (Dillman et al. 2012) Syn.: Lecidea intrudens
latypizodes (Nyl.) Knoph & Rambold (Knoph et al. 2004) Syns.: Lecidea austrocalifornica, L. subplebeia (Knudsen et al. 2008b), L. subcontinuior, L. amabilis, Mycobilimbia austrocalifornica
***supersparsa** (Nyl.) Hertel (Diederich 2003)
***vitellinaria** (Nyl.) Hertel Syn.: Lecidea vitellinaria
vorticosa (Flörke) Hertel Syn.: Lecidea vorticosa
intrusa (Th. Fr.) Rambold & Triebel (Hinds et al. 2002) = Scoliciosporum intrusum

CARBONICOLA Bendiksby & Timdal (Bendiksby & Timdal 2013)

anthracophila (Nyl.) Bendiksby & Timdal Syns.: Biatora anthracophila, Hypocenomyce anthracophila, Lecidea anthracophila, Psora anthracophila
myrmecina (Ach.) Bendiksby & Timdal Syn.: Hypocenomyce castaneocinerea

CATAPYRENIUM Flotow (Breuss 1996)

cinereum (Pers.) Körber Syn.: Dermatocarpon cinereum, D. hepaticum
daedaleum (Kremp.) Stein Syn.: Dermatocarpon daedaleum
globosum J. W. Thomson
granulosum (B. de Lesd.) J. W. Thomson Syns.: Endopyrenium crustaceum, E. granulosum, Dermatocarpon granulosum
psoromoides (Borrer) R. Sant.
squamellum (Nyl. ex Hasse) J. W. Thomson Syn.: Dermatocarpon squamellum
acarosporoides (Zahlbr.) J. W. Thomson = Placidium acarosporoides

andicolum Breuss = Placidium andicola
 caeruleopulvinum J. W. Thomson = Placopyrenium caeruleopulvinum
 chilense (Räsänen) Breuss = Placidium chilense
 #compactum (A. Massal.) R. Sant. = Heteroplacidium compacta
 congestum Breuss & McCune = Heteroplacidium congestum
 heppioides (Zahlbr.) J. W. Thomson = Placopyrenium heppioides
 lachneum (Ach.) R. Sant. = Placidium lachneum
 lacinulatum (Ach.) Breuss = Clavascidium lacinulatum
 michelii (A. Massal.) R. Sant. = Placidium michelii
 norvegicum Breuss = Placidium norvegicum
 plumbeum (B. de Lesd.) J. W. Thomson (p.p.) = Verrucaria inficiens (Breuss 1998)
 podolepis Breuss = Placidium podolepis
 rufescens (Ach.) Breuss = Placidium rufescens
 schaereri (Fr.) R. Sant. = Placopyrenium coloradoense for North American reports
 squamulosum (Ach.) Breuss = Placidium squamulosum
 tuckermanii (Rav. ex Mont.) J. W. Thomson = Placidium arboreum
 umbrinum Breuss = Clavascidium umbrinum
 waltheri (Kremp.) Körber = Involucropyrenium waltheri
 zahlbruckneri (Hasse) J. W. Thomson = Placopyrenium stanfordii

CATILLARIA A. Massal.

atomarioides (Müll. Arg.) H. Kilius (Kocourková et al. 2010)
chalybeia (Borrer) A. Massal.
contristans (Nyl.) Zahlbr. (Miller et al. 2005)
cupressi Zahlbr.
erysiboides (Nyl.) Th. Fr. Syn.: Arthonia carneorufa (Printzen & Tønsberg 1999)
flavens (Willey) Fink
glauconigrans (Tuck.) Hasse
lenticularis (Ach.) Th. Fr.
***lobariicola** (Alstrup) Coppins & Aptroot (Spribille et al. 2010)
musciicola Lynge
nigroclavata (Nyl.) Schuler Syn.: Bacidia declinis, Bilimbia declinis, Lecidea declinis
picila (A. Massal.) Coppins (McCune & Rosentreter 2014)
***stereocaulorum** (Th. Fr.) H. Olivier (Zhurbenko 2010)
subnegans (Nyl.) Boistel
subviridis (Nyl.) Zahlbr.
terrena (Willey) Zahlbr.
 arctica Lynge = Toninia philippea
 athallina (Hepp) Hellbom = Toninia athallina
 atropurpurea (Schaerer) Th. Fr. = Catinaria atropurpurea
 bahusiensis (Blomb.) Th. Fr. = Tylothallia biformigera
 biformigera (Leighton) H. Magn. = Tylothallia biformigera
 bouteillei (Desm.) Zahlbr. = Fellhanera bouteillei
 columbiana (G. Merr.) W. Noble = Megalaria columbiana
 crystallifera R. Kilius = Toninia lutosa
 endochroma (Fée) Zahlbr. = Catillochroma endochroma
 franciscana (Tuck.) Herre = Lecania franciscana
 globulosa (Flörke) Th. Fr. = Biatora globulosa
 graniformis (K. G. Hagen) Vainio = Cliostomum corrugatum
 griffithii (Sm.) Malme = Cliostomum griffithii
 groenlandica Lynge = a Lecania sp.
 grossa (Pers. ex Nyl.) Körber = Megalaria grossa
 *heerii (Hepp) H. Olivier = Scutula heerii
 *herrii (Hepp) Fink (Fink 1935) Orthographic variant for C. heerii
 jemtlandica Th. Fr. & Almq. = Megalaria jemtlandica
 kansuensis H. Magn. = Toninia philippea

laureri Hepp ex Th. Fr. = Megalaria laureri
 leptocheila (Tuck.) Riddle = Megalaria leptocheila
 micrococca (Körber) Th. Fr. = Micarea micrococca (Fryday & Coppins 2007)
 philippea (Mont.) A. Massal. = Toninia philippea (Thomson 1997)
 prasina (Fr.) Th. Fr. = Micarea prasina
 pulverea (Borrer) Lettau = Megalaria pulverea
 schaeferi (Fr.) R. Sant. = Placocarpus schaeferi, but a misidentification for N.A. (McCune et al. 2014b)
 sculpturata H. Magn. = Toninia sculpturata
 sphaeroides (A. Massal.) Schuler = Mycobilimbia pilularis
 subnitida Hellbom = Toninia subnitida
 subnigrata (Nyl.) Blomb. & Forssell = a European species
 superflua (Müll. Arg.) Zahlbr. = ?Megalaria grossa (Printzen 1995)
 tricolor auct. = Cliostomum griffithii
 tristis (Müll. Arg.) Arnold = Toninia subnitida

CATILLOCHROMA Kalb (Kalb 2007)

endochromum (Fée) Kalb (Lücking et al. 2011b) Syn.: Catillaria endochroma
 albocinctum (Degel.) Kalb = Megalaria albocincta (Fryday & Lendemer 2010)
 leptocheilum (Tuck.) Kalb = Megalaria leptocheila (Fryday & Lendemer 2010)

CATINARIA Vainio

atropurpurea (Schaefer) Vězda & Poelt Syns.: Biatora atropurpurea, Catillaria atropurpurea
brodoana R. C. Harris & W. R. Buck (Lendemer et al. 2016a)
radulae R. C. Harris & W. R. Buck (Lendemer et al. 2016a)
subcorallina (Zahlbr.) Brako Syn.: Phyllopsora subcorallina
 albocincta Degel. = Megalaria albocincta
 grossa (Pers. ex Nyl.) Vainio = Megalaria grossa
 laureri (Hepp ex Th. Fr.) Degel. = Megalaria laureri
 leucoplaca auct. = Megalaria grossa
 versicolor (Fée) Sipman = Megalaria versicolor

CATOLECHIA Flotow

wahlenbergii (Ach.) Körber Syns.: Buellia wahlenbergii, B. pulchella

CAVERNULARIA Degel. = **HYPOGYMNIA** (Miądlikowska et al. 2011)

hultenii Degel. = Hypogymnia hultenii
 lophyrea (Ach.) Degel. = Hypogymnia lophyrea

CECIDONIA Triebel & Rambold

***umbonella** (Nyl.) Triebel & Rambold Syn.: Lecidea umbonella
 ***xenophana** (Körber) Triebel & Rambold (Hinds et al. 2002) Syn.: Lecidea columnata (Coppins & Fryday 2006b)

CELIDIUM Tul. = **ARTHONIA**

*varians Arnold = Arthonia varians (Hawksworth 2003)

CELOTHELIUM A. Massal. (Harris 1995a)

aciculiferum (Nyl.) Vainio (Harris 1995a)

CEPHALOPHYSIS (Hertel) H. Kilius

leucospila (Anzi) H. Kilius & Scheid. Syn.: Lecidea ultima

CERCIDOSPORA Körber

***caudata** Kernst. (Navarro-Rosinés et al. 2004)
 ***cecidiformans** Grube & Hafellner (Hafellner et al. 2002, Spribille et al. 2010)
 ***cladoniicola** Alstrup (Lendemer et al. 2008c)

#**decolorella** (Nyl.) O. E. Erikss. & J. Z. Yue
 ***epicarphinea** (Nyl.) Grube & Hafellner
 ***epipolytropa** (Mudd) Arnold
 ***exiguella** (Nyl.) Arnold (Spribille et al. 2010)
 ***lobothalliae** Nav.-Ros. & Calat. (Navarro-Rosinés et al. 2004)
 ***macrospora** (Uloth) Hafellner & Nav.-Ros. (Navarro-Rosinés et al. 2004)
 ***ochrolechia** Zhurb. (Zhurbenko 2013)
 ***punctillata** (Nyl.) R. Sant. (Zhurbenko 2013)
 ***soror** Obermayer & Triebel (McCune & Ponzetti 2005)
 ***stereocaulorum** (Arnold) Hafellner (Alstrup & Cole 1998)
 ***thamnoliae** Zhurb. (Zhurbenko 2012)
 ***verrucosaria** (Lindsay) Arnold (Navarro-Rosinés et al. 2004)
 ***xanthoriae** (Wedd.) R. Sant. (Knudsen & Lendemer 2006)
 ***ulothii** Körber = *C. macrospora* (Navarro-Rosinés & Hafellner 2004)

CEROTHALLIA Arup, Frödén & Söchting (Arup et al. 2013)
luteoalba (Turner) Arup, Frödén & Söchting Syn.: *Caloplaca luteoalba*

CETRADONIA J.-C. Wei & Ahti (Wei & Ahti 2002)
linearis (Evans) J.-C. Wei & Ahti Syn.: *Gymnoderma linearis*, *Cladonia linearis*

CETRARIA Ach.
aculeata (Schreber) Fr. Syns.: *Coelocaulon aculeatum*, *Cornicularia aculeata*
arenaria Kärnefelt
ericetorum Opiz subsp. **ericetorum**
ericetorum subsp. **reticulata** (Räsänen) Kärnefelt
islandica (L.) Ach. subsp. **islandica**
islandica subsp. **crispiformis** (Räsänen) Kärnefelt
islandica subsp. **orientalis** (Asahina) Kärnefelt
kameczatica Savicz
laevigata Rass.
muricata (Ach.) Eckfeldt Syn.: *Coelocaulon muricatum*
nigricans Nyl.
odontella (Ach.) Ach. Syns.: *Cornicularia odontella*, *Coelocaulon odontellum*
agnata (Nyl.) Kristinsson = *Melanelia agnata*
alaskana W. L. Culb. & C. F. Culb. = *Cetrelia alaskana*
andrejevii Oxner = *Arctocetraria andrejevii*
arborialis (Zahlbr.) Howard = *Tuckermannopsis subalpina*
atlantica (Tuck.) Du Rietz = *Platismatia tuckermanii*
aurescens Tuck. = *Ahtiana aurescens*
californica Tuck. = *Kaernefeltia californica*
canadensis (Räsänen) Räsänen = *Vulpicida canadensis*
chicita W. L. Culb. = *Cetrelia chicita*
chlorophylla (Willd.) Vainio = *Tuckermannopsis chlorophylla*
chrysantha Tuck. = *Asahinea chrysantha*
ciliaris Ach. = *Tuckermannopsis ciliaris*
ciliaris Ach. var. **halei** (W. L. Culb. & C. F. Culb.) Ahti = *Tuckermannopsis americana*
commixta (Nyl.) Th. Fr. = *Cetrariella commixta*
coralligera (W. A. Weber) Hale = *Tuckermanella coralligera*
crispa (Ach.) Nyl. = *C. ericetorum* subsp. *ericetorum*
cucullata (Bellardi) Ach. = *Flavocetraria cucullata*
culbersonii Hale = *Melanelia culbersonii*
delisei (Bory ex Schaerer) Nyl. = *Cetrariella delisei*
elenkinii Krog = *Arctocetraria nigricascens*
fahlunensis (L.) Schreber = *Cetrariella commixta*
fastigiata (Delise ex Nyl.) Kärnefelt = *Cetrariella fastigiata*

fendleri (Nyl.) Tuck. = Tuckermanella fendleri
 glauca (L.) Ach. = Platismatia glauca
 halei W. L. Culb. & C. F. Culb. = Tuckermannopsis americana
 hepatizon (Ach.) Vainio = Melanelia hepatizon
 herrei Imshaug = Platismatia herrei
 hiascens (Fr.) Th. Fr. = Cetrariella delisei
 idahoensis Essl. = Esslingeriana idahoensis
 inermis (Nyl.) Krog = Masonhalea inermis
 juniperina (L.) Ach. = Old North American records are Vulpicida canadensis or V. viridis
 juniperina var. jerseyi Gyelnik (Gyelnik 1931) = V. viridis
 lacunosa Ach. = Platismatia lacunosa
 lacunosa Ach. var. atlantica Tuck. = Platismatia tuckermanii
 merrillii Du Rietz = Kaernefeltia merrillii
 nigricascens (Nyl.) Elenkin = Arctocetraria nigricascens
 nivalis (L.) Ach. = Flavocetraria nivalis
 norvegica (Lynge) Du Rietz = Platismatia norvegica
 oakesiana Tuck. = Usnocetraria oakesiana
 orbata (Nyl.) Fink = Tuckermannopsis orbata
 pallidula Tuck. ex Riddle = Ahtiana pallidula
 pinastri (Scop.) Gray = Vulpicida pinastri
 platyphylla Tuck. = Tuckermannopsis platyphylla
 polyschiza (Nyl.) Jatta = Melanelia hepatizon
 richardsonii Hooker = Masonhalea richardsonii
 scholanderi Llano = Asahinea scholanderi
 scutata (Wulfen) Poetsch = Tuckermannopsis sepincola
 scutata auct. = Tuckermannopsis chlorophylla
 sepincola (Ehrh.) Ach. = Tuckermannopsis sepincola
 sibirica H. Magn. = Arctocetraria nigricascens
 simmonsii Krog = Arctocetraria andrejevii
 stenophylla (Tuck.) G. Merr. = Platismatia stenophylla
 subalpina Imshaug = Tuckermannopsis subalpina
 tilesii Ach. = Vulpicida juniperina (Saag et al. 2014)
 tristis (Weber ex F. H. Wigg.) Fr. = Cornicularia normoerica (Santesson et al. 2004)
 tuckermanii Oakes non Herre = Platismatia tuckermanii
 tuckermanii Herre non Oakes = Platismatia herrei
 viridis Schwein. = Vulpicida viridis
 weberi Essl. = Tuckermanella weberi

CETRARIASTRUM Sipman = HYPOTRACHYNA (Divakar et al. 2013)
 catawbiense (Degel.) W. L. Culb. & C. F. Culb. = Hypotrachyna catawbiensis

CETRARIELLA Kärnefelt & A. Thell

commixta (Nyl.) A. Thell & Kärnefelt (Thell et al. 2009) Syns.: Cetraria commixta, C. fahlunensis, Melanelia commixta
delisei (Schaerer) Kärnefelt & A. Thell Syn.: Cetraria delisei, C. hiascens
fastigiata (Nyl.) Kärnefelt & A. Thell Syn.: Cetraria fastigiata

CETRELIA W. L. Culb. & C. F. Culb.

alaskana (C. F. Culb. & W. L. Culb.) W. L. Culb. & C. F. Culb. Syn.: Cetraria alaskana
cetrarioides (Duby) W. L. Culb. & C. F. Culb.
chicita (W. L. Culb.) W. L. Culb. & C. F. Culb. Syn.: Cetraria chicitae
monachorum (Zahlbr.) W. L. Culb. & C. F. Culb.
olivetorum (Nyl.) W. L. Culb. & C. F. Culb. Syns.: Parmelia olivetorum, P. olivaria

CHAENOTHECA Th. Fr.

balsamconensis J. L. Allen & McMullin (Allen & McMullin 2015)
brachypoda (Ach.) Tibell Syn.: Coniocybe sulphurea
brunneola (Ach.) Müll. Arg.
chlorella (Ach.) Müll. Arg.
chrysocephala (Ach.) Th. Fr. Syn.: Coniocybe gracilescens
cinerea (Pers.) Tibell
erkahomattiorum Selva (Selva 2013)
ferruginea (Turner ex Sm.) Mig.
floridana R. C. Harris (Harris 1995a)
furfuracea (L.) Tibell Syn.: Coniocybe furfuracea
gracilenta (Ach.) J.-E. Mattsson & Middelb. Syn.: Cybebe gracilenta (Tibell 2001)
gracillima (Vainio) Tibell Syn.: Coniocybe gracillima
hispidula (Ach.) Zahlbr.
hygrophila Tibell (Selva & Tibell 1999)
laevigata Nádv.
nitidula Tibell (Tibell & Koffman 2002)
olivaceorufa Vainio (Rikkinen 1998)
phaeocephala (Turner) Th. Fr.
servitii Nádv. (Selva & Tibell 1999)
sphaerocephala Nádv. (Selva & Tibell 1999)
stemonea (Ach.) Müll. Arg.
subroscida (Eitner) Zahlbr.
trichialis (Ach.) Th. Fr.
xyloxena Nádv.
 carthusiae (Harm.) Lettau = C. chlorella
 melanophaea (Ach.) Zwackh = C. ferruginea
 savonica (Räsänen) Tibell = Chaenothecopsis savonica
 schaeferi (De Not.) Zahlbr. = C. cinerea
 sulphurea (Retz.) Middleborg & J.-E. Mattsson = C. brachypoda
 trichialis var. cinerea (Pers.) Blomb. & Forssell = C. cinerea

CHAENOTHECOPSIS Vainio

⁺**aeruginosa** Goward & E. B. Peterson (Peterson & Goward 2016)
amurensis Titov (Selva 2013)
^{*}**arthoniae** Tibell (Dillman et al. 2012)
⁺**asperopoda** Titov (Selva & Tibell 1999)
^{*}**australis** Tibell (Selva 2014)
^{*}**brevipes** Tibell
⁺**claydenii** Selva & Tuovila (Selva & Tuovila 2016)
^{*}**consociata** (Nádv.) A.F.W. Schmidt
⁺**debilis** (Turner & Borrer ex Sm.) Tibell
⁺**diabolica** Rikkinen & Tuovila (Tuovila et al. 2011, 2012)
^{*}**dibbleandersoniarum** Selva (Selva 2013)
⁺**dolichocephala** Titov (Selva 2010)
⁺**edbergii** Selva & Tibell (Selva & Tibell 1999)
^{*}**epithallina** Tibell
⁺**eugenia** Titov (Selva & Tuovila 2016)
⁺**exilis** Tibell (Selva & Tibell 1999)
⁺**fennica** (Laurila) Tibell (Selva 2014)
⁺**haematopus** Tibell (Selva & Tibell 1999)
⁺**irregularis** Titov (Selva & Tibell 1999)
^{*}**kalbii** Tibell & K. Ryman (Lendemer et al. 2008c)
^{*}**lecanactidis** Tibell (Hardman et al. 2016)
⁺**marcineae** Selva (Selva 2013)
⁺**montana** Rikkinen (Rikkinen 2003b)
⁺**nana** Tibell

***nigra** Tibell (Harris & Lendemer 2005, Spribille & Björk 2008)
 +**nigripunctata** Rikkinen (Rikkinen 2003a)
 +**nivea** (F. Wilson) Tibell (Hardman et al. 2016)
 +**norstictica** R. C. Harris (Harris 1995a)
 +**oregana** Rikkinen (Rikkinen 2003b, Tuovila et al., 2011, 2012)
 ***ochroleuca** (Körber) Tibell & K. Ryman (Selva & Tibell 1999)
 ***pilosa** Tibell & Kalb (Harris 1995a)
 #**pusilla** (Ach.) A.F.W. Schmidt Syns.: *Calicium pusillum*, *C. floerkei*, *C. subpusillum*, *C. asikkalense*
 #**pusiola** (Ach.) Vainio Syns.: *Calicium pusiolum*, *Mycocalicium pusiolum*
 +**rappii** (Nádv.) R. C. Harris (Harris 1995a) Syn.: *Mycocalicium rappii*
 +**resinicola** Tibell & Titov (Selva 2010)
 +**rubescens** Vainio
 ***rubina** Tibell (Peterson & Rikkinen 1999)
 +**savonica** (Räsänen) Tibell Syns.: *Mycocalicium savonicum*, *Chaenotheca savonica*
 +**sitchensis** Rikkinen (Rikkinen 1999)
 ***subparoica** (Nyl.) Tibell (Peterson & Rikkinen 1999)
 +**tasmanica** Tibell (Selva & Tibell 1999)
 +**tsugae** Rikkinen (Rikkinen 1999)
 +**ussuriensis** Titov (Peterson & Rikkinen 1999)
 +**vainioana** (Nádv.) Tibell (Hardman et al. 2016)
 ***viridialba** (Kremp.) A.F.W. Schmidt
 #**viridireagens** (Nádv.) A.F.W. Schmidt
 #**lignicola** (Nádv.) A.F.W. Schmidt = *C. pusiola*
 #**subpusilla** (Vainio) Tibell = *C. pusilla*
 +**thujae** Rikkinen (Selva & Tibell 1999) = *C. tsugae* (Selva 2010)
 +**zebrina** Rikkinen & Tuovila (Tuovila et al. 2011) = *C. oregana* (Tuovila et al. 2012)

CHALARA (Corda) P. A. Saccardo

***lobariae** Etayo (Zhurbenko & Dillman 2010)

CHAPSA A. Massal. (Frisch 2006)

alborosella (Nyl.) A. Frisch Syns.: *Ocellularia alborosella*, *Thelotrema alborosellum* (Frisch 2006)
boninensis (Tat. Matsumoto) Rivas Plata & Mangold (Seavey et al. 2017)
chionostoma (Nyl.) Rivas Plata & Mangold (Lücking et al. 2011b)
leprocarpa (Nyl.) A. Frisch Syns.: *Graphina leptocarpa*, *Thelotrema leptocarpum* (Frisch 2006)
paralbida (Riddle) Rivas Plata & Lücking (Seavey et al. 2017)
phlyctidioides (Müll. Arg.) Mangold (Seavey et al. 2017)
platycarpa (Tuck.) A. Frisch Syns.: *Thelotrema platycarpoides*, *T. platycarpum* (Frisch 2006)
platycarpoides (Tuck.) Breuss & Lücking (Lücking et al. 2011b)
subpatens (Hale) Mangold (Lücking et al. 2011b)

CHEIROMYCINA B. Sutton

flabelliformis B. Sutton (Tønsberg 2002)

CHIODECTON Ach.

malmei Thor
ochroleucum Zahlbr. = *Paraschismatomma ochroleucum* (Ertz & Tehler 2011)
californicum Tuck. = *Schizopelte crustosa* (Ertz & Tehler 2011)
inscriptum (Nyl.) Fink = *Sclerophyton inscriptum*
montagnaei auct. N.A. = *Cryptothecia striata*
perplexum Nyl. = *Syncesia graphica* (Tehler 1996)
rubrocinctum (Ehrenb. : Fr.) Nyl. = *Herpothallon rubrocinctum*
sanguineum (Sw.) Vainio = *Herpothallon rubrocinctum*
sphaerale Ach. = misidentification for North America (Harris 1995a)
subochroleucum Fink = *Dendrographa franciscana* (Kocourková et al. 2010; Ertz & Tehler 2011)

CHIONOSPHERA Cox

*apobasidialis Cox (According to Diederich [1996, and pers. comm.], only non-lichenicolous specimens are known for North America, and the lichenicolous specimens from Europe may represent a distinct species.)

CHRISMOFULVEA Marbach

dialyta (Nyl.) Marbach Syn.: Buellia dialyta (Marbach 2000)
pinastri (Erichsen) Marbach Syn.: Buellia pinastri (Marbach 2000)
rubifaciens (R. C. Harris) Marbach Syn.: Buellia rubifaciens (Marbach 2000)

CHROMATOCHLAMYS Trevisan (Nelsen et al. 2017)

muscorum (Fr.) H. Mayrhofer & Poelt var. muscorum Syn.: Thelenella muscorum
muscorum var. **octospora** (Nyl.) H. Mayrhofer & Poelt Syn.: Thelenella muscorum var. octosporum

CHRYSOPSORA M. Choisy

testacea (Hoffm.) M. Choisy = Protoblastenia testacea, but not in North American flora.

CHRYSOTHRIX Mont.

caesia (Flotow) Ertz & Tehler (Ertz & Tehler 2011) Syns.: Allarthonia caesia, Arthonia caesia, A. lecideella
candelaris (L.) J. R. Laundon Syns.: Lepraria candelaris, L. flava, L. citrina sens. lat.
chamaecyparicola Lendemer (Lendemer & Elix 2010)
chlorina (Ach.) J. R. Laundon Syn.: Lepraria chlorina
chrysophthalma (P. James) P. James & J. R. Laundon (Tønsberg 2002)
granulosa G. Thor (Tønsberg 2004a)
insulizans R. C. Harris & Ladd (Harris & Ladd 2008)
onokoensis (Wolle) R. C. Harris & Ladd (Harris & Ladd 2008)
susquehannensis Lendemer & Elix (Lendemer & Elix 2010)
xanthina (Vainio) Kalb (Harris & Ladd 2008)
flavovirens Tønsberg (Harris & Lendemer 2005) North American report is C. chamaecyparicola

CIPOSIA Marbach

wheeleri (R. C. Harris) Marbach Syn.: Buellia wheeleri (Marbach 2000)

CIRCINARIA Link (Nordin et al. 2010)

arida Owe-Larsson, A. Nordin & Tibell (Owe-Larsson et al. 2011) Syns.: Aspicilia desertorum, Lecanora desertorum (American reports only)
caesiocinerea (Nyl. ex Malbr.) A. Nordin, Savić & Tibell Syns.: Aspicilia caesiocinerea, Lecanora caesiocinerea
calcareo (L.) A. Nordin, Savić & Tibell Syns.: Aspicilia calcarea, Lecanora calcarea
contorta (Hoffm.) A. Nordin, Savić & Tibell Syns.: Aspicilia contorta, Lecanora contorta
elmori (E. D. Rudolph) Owe-Larsson, A. Nordin & M. Sohrabi (Owe-Larsson et al. 2011) Syn.: Lecanora elmori
gibbosa (Ach.) A. Nordin, Savić & Tibell Syns.: Aspicilia gibbosa, Lecanora gibbosa, L. gibbosula
hispida (Mereschk.) A. Nordin, Savić & Tibell Syns.: Agrestia hispida, A. cyphellata, Aspicilia hispida
leproscens (Sandst.) A. Nordin, Savić & Tibell Syn.: Aspicilia leproscens
rogeri (Sohrabi) Sohrabi (Sohrabi et al. 2013b) Syn.: Aspicilia rogeri

CLADIDIUM Hafellner

bolanderi (Tuck.) B. D. Ryan Syns.: Lecanora thamnitidis, L. bolanderi
thamnitidis (Tuck.) Hafellner = C. bolanderi

CLADINA Nyl. = CLADONIA (Ahti & DePriest 2001)

aberrans (Abbeyes) Hale & W. L. Culb. = Cladonia stellaris
alpestris (L.) Nyl. = Cladonia stellaris

arbuscula (Wallr.) Hale & W. L. Culb. = *Cladonia arbuscula*
 arbuscula subsp. beringiana (Ahti) N. S. Golubk. = *Cladonia arbuscula* subsp. beringiana
 beringiana (Ahti) Trass = *Cladonia arbuscula* subsp. beringiana
 ciliata (Stirton) Trass var. ciliata = *Cladonia ciliata* var. ciliata
 ciliata var. tenuis (Flörke) Ahti & M. J. Lai = *Cladonia ciliata* var. tenuis
 conspicua Ahti = *Cladonia conspicua*
 evansii (Abbeyes) Hale & W. L. Culb. = *Cladonia evansii*
 impexa B. de Lesd. = *Cladonia portentosa*
 leucophaea (Abbeyes) Hale & W. L. Culb. = *Cladonia ciliata* var. ciliata
 mitis (Sandst.) Mong. = *Cladonia arbuscula* subsp. mitis
 pacifica (Ahti) Hale & W. L. Culb. = *Cladonia portentosa* subsp. pacifica
 portentosa (Dufour) Follmann = *Cladonia portentosa*
 portentosa subsp. pacifica (Ahti) Ahti = *Cladonia portentosa* subsp. pacifica
 portentosa subsp. pacifica f. decolorans (Ahti) Ahti = *Cladonia portentosa* subsp. pacifica f. decolorans
 pseudoëvansii (Asahina) Hale & W. L. Culb. = *Cladonia pseudoëvansii*
 rangiferina (L.) Nyl. = *Cladonia rangiferina*
 sandstedei (Abbeyes) Ahti = *Cladonia sandstedei*
 stellaris (Opiz) Brodo = *Cladonia stellaris*
 stellaris var. aberrans (Abbeyes) Ahti = *Cladonia stellaris*
 stygia (Fr.) Ahti = *Cladonia stygia*
 submitis (A. Evans) Hale & W. L. Culb. = *Cladonia submitis*
 subtenuis (Abbeyes) Hale & W. L. Culb. = *Cladonia subtenuis*
 subtenuis f. cinerea (Ahti) Ahti = *Cladonia subtenuis* f. cinerea
 tenuis (Flörke) B. de Lesd. = *Cladonia ciliata* var. tenuis
 terrae-novae (Ahti) Hale & W. L. Culb. = *Cladonia terrae-novae*

CLADONIA P. Browne

abbreviatula G. Merr.
acuminans R. C. Harris (Harris 2009)
acuminata (Ach.) Norrlin
alaskana A. Evans
albonigra Brodo & Ahti (Brodo & Ahti 1996)
alinii Trass (Ahti 1980)
amaurocraea (Flörke) Schaerer
andereggii S. Hammer
anitae W. L. Culb. & C. F. Culb.
apodocarpa Robbins
appalachensis Yoshim. & Sharp ex Lendemer & R. C. Harris (Lendemer & Harris 2013b)
arbuscula (Wallr.) Flotow subsp. **arbuscula** Syn.: *Cladina arbuscula*
arbuscula subsp. **beringiana** Ahti Syn.: *Cladina arbuscula* subsp. beringiana
arbuscula subsp. **mitis** (Sandst.) Ruoss Syn.: *Cladina mitis* (Piercey-Normore 2010)
artuata S. Hammer
asahinae J. W. Thomson
atlantica A. Evans
bacilliformis (Nyl.) Sarnth.
beaumontii (Tuck.) Vainio
bellidiflora (Ach.) Schaerer
borealis S. Stenroos
boryi Tuck.
botryocarpa G. Merr.
botrytes (K. G. Hagen) Willd.
brevis (Sandst.) Sandst.
buckii R. C. Harris
caespiticia (Pers.) Flörke
cariosa (Ach.) Sprengel
carneola (Fr.) Fr.

caroliniana Tuck. Syn.: *Pycnothelia cladinoidea*
cenotea (Ach.) Schaerer
cervicornis (Ach.) Flotow subsp. **cervicornis**
chlorophaea (Flörke ex Sommerf.) Sprengel
ciliata Stirton Syn.: *Cladina ciliata*
ciliata var. **tenuis** (Flörke) Ahti Syn.: *Cladina ciliata* var. *tenuis*
cinerella Ahti (Ahti 2000, Seavey 2010[2011])
coccifera (L.) Willd.
concinna Ahti & Goward (Ahti 2007)
coniocraea (Flörke) Sprengel
conista (Nyl.) Robbins (Pino-Bodas et al. 2012)
conspicua (Ahti) Ahti Syn.: *Cladina conspicua*
cornuta (L.) Hoffm. subsp. **cornuta**
cornuta subsp. **groenlandica** (E. Dahl) Ahti
crispata (Ach.) Flotow var. **crispata**
crispata var. **cetrariiformis** (Delise) Vainio
crisatella Tuck.
cryptochlorophaea Asahina
cyanipes (Sommerf.) Nyl.
cylindrica (A. Evans) A. Evans
dactylota Tuck.
dahlia Kristinsson
decorticata (Flörke) Sprengel
deformis (L.) Hoffm.
didyma (Fée) Vainio
didyma var. **vulcanica** (Zoll. & Moritzi) Vainio
digitata (L.) Hoffm.
dimorpha S. Hammer
dimorphoclada Robbins
ecmocyna Leighton subsp. **ecmocyna**
ecmocyna subsp. **intermedia** (Robbins) Ahti
ecmocyna subsp. **occidentalis** Ahti (Brodo & Ahti 1996)
evansii Abbayes Syn.: *Cladina evansii*
extracorticata S. Hammer
farinacea (Vainio) A. Evans
fimbriata (L.) Fr.
firma (Nyl.) Nyl.
flörkeana (Fr.) Flörke
floridana Vainio
furcata (Hudson) Schrader
glauca Flörke
gracilis (L.) Willd. subsp. **gracilis**
gracilis subsp. **elongata** (Jacq.) Vainio
gracilis subsp. **turbinata** (Ach.) Ahti
gracilis subsp. **vulnerata** Ahti
granulans Vainio
grayi G. Merr. ex Sandst.
homosekikaica Nuno
humilis (With.) J. R. Laundon
hypoxantha Tuck.
imbricarica Kristinsson
incrassata Flörke
jakutica Ahti (McCune et al. 2009)
jaliscana Ahti & Guzm.-Dáv. (Ahti & Hammer 2002)
kanewskii Oxner
labradorica Ahti & Brodo

lacryma S. Hammer (Hammer 2001)
leporina Fr.
libifera Savicz (McCune et al. 2009; Hansen & Ahti 2011)
luteoalba Wheldon & A. Wilson
macilenta Hoffm.
macilenta var. **bacillaris** (Ach.) Schaerer
macroceras (Delise) Ahti
macrophylla (Schaerer) Stenh.
macrophyllodes Nyl.
magyarica Vainio
maritima K. Knudsen & Lendemer (Knudsen & Lendemer 2009a)
mateocyatha Robbins
maxima (Asahina) Ahti
merochlorophaea Asahina
monomorpha Aptroot, Sipman & van Herk (Kowalewska et al. 2008)
multiformis G. Merr.
nana Vainio
nashii Ahti (Ahti & Hammer 2002)
nipponica Asahina
nitens Ahti (Ahti 2007)
norvegica Tønsberg & Holien
novochlorophaea (Sipman) Brodo & Ahti (Brodo & Ahti 1996)
ochrochlora Flörke
oricola Ahti & S. Stenroos (Ahti & Stenroos 2008)
pachycladodes Vainio
parasitica (Hoffm.) Hoffm.
perforata A. Evans
perlomera Kristinsson
petrophila R. C. Harris
peziziformis (With.) J. R. Laundon
phyllophora Hoffm.
piedmontensis G. Merr.
pleurota (Flörke) Schaerer
pocillum (Ach.) O. J. Rich.
poroscypha S. Hammer
portentosa (Dufour) Coem. Syn.: *Cladina portentosa*
portentosa subsp. **pacifica** (Ahti) Ahti Syn.: *Cladina portentosa* subsp. *pacifica*
portentosa subsp. **pacifica** f. **decolorans** Ahti Syn.: *Cladina portentosa* subsp. *pacifica* f. *decolorans*
prolifera Ahti & S. Hammer
prostrata A. Evans
pseudalcicornis Asahina (Ahti 2007)
pseudoëvansii Asahina Syn.: *Cladina pseudoëvansii*
pulvinella S. Hammer
pyxidata (L.) Hoffm.
ramulosa (With.) J. R. Laundon
rangiferina (L.) F. H. Wigg. Syn.: *Cladina rangiferina*
rappii A. Evans
ravenelii Tuck.
rei Schaerer (Syrek & Kukwa 2008, Dolnik et al. 2010, Pino-Bodas et al. 2010)
robbinsii A. Evans
sandstedei Abbayes Syn.: *Cladina sandstedei*
santensis Tuck.
scabriuscula (Delise) Nyl.
scotteri Ahti & E. S. Hansen (Hansen & Ahti 2011)
simulata Robbins
singularis S. Hammer

squamosa (Scop.) Hoffm.
squamosa var. **subsquamosa** (Nyl. ex Leighton) Vainio
stellaris (Opiz) Pouzar & Vězda Syn.: *Cladonia stellaris*
stipitata Lendemer & Hodkinson (Lendemer & Hodkinson 2009)
straminea (Sommerf.) Flörke (Timdal & Tønsberg 2012)
strepsilis (Ach.) Grognot
stricta (Nyl.) Nyl.
stygia (Fr.) Ruoss Syn.: *Cladonia stygia*
subcariosa Nyl. (Ahti 2000)
subfimbriata Ahti (Ahti & Hammer 2002)
subfurcata (Nyl.) Arnold
submitis A. Evans Syn.: *Cladonia submitis*
subradiata (Vainio) Sandst.
subsetacea Robbins ex A. Evans
subsquamosa Kremp.
subtenuis (Abbayes) Mattick Syn.: *Cladonia subtenuis*
subtenuis f. **cinerea** Ahti Syn.: *Cladonia subtenuis* f. *cinerea*
subulata (L.) F. H. Wigg.
sulphurina (Michaux) Fr.
symphy carpia (Flörke) Fr. (Ahti 2000, Hansen & Ahti 2011)
terrae-novae Ahti Syn.: *Cladonia terrae-novae*
thiersii S. Hammer
thomsonii Ahti
transcendens (Vainio) Vainio
trassii Ahti (Ahti 1998)
turgida Ehrh. ex Hoffm.
uliginosa (Ahti) Ahti (Ahti 1998)
umbricola Tønsberg & Ahti
uncialis (L.) F. H. Wigg. subsp. **uncialis** (Stenroos et al. 2015)
uncialis subsp. **biuncialis** (Hoffm.) M. Choisy (Stenroos et al. 2015)
verruculosa (Vainio) Ahti
verticillata (Hoffm.) Schaerer (Ahti, in litt.)
wainioi Savicz
aberrans (Abbayes) Stuckenb. = *Cladonia stellaris*
acuminata var. *norrlinii* (Vainio) Lynge = *C. acuminata*
alpestris (L.) Rabenh. = *C. stellaris*
alpestris f. *aberrans* Abbayes = *C. stellaris*
alpicola (Flotow) Vainio = *C. macrophylla*
anomaea (Ach.) Ahti & P. James = *C. ramulosa*
bacillaris (Ach.) Genth = *C. macilenta* var. *bacillaris*
balfourii auct. = *C. subradiata*
balfourii Crombie = *C. macilenta*
blakei Robbins = *C. coccifera*
borbonica (Delise) Nyl. North American reports are *C. cylindrica* (Evans 1950)
botryoides (Tuck.) Vainio = *C. squamosa* (Ahti et al. 2016)
calycantha Delise ex Nyl. = *C. rappii* for North American records.
capitata (Michaux) Sprengel = *C. peziziformis*
carassensis Vainio = misidentification for North America
cerasphora Vainio (Fink 1935) = *C. stricta* (Ahti 1998)
cerasphora auct. = *C. trassii* (Ahti, in litt.)
cervicornis subsp. *verticillata* (Hoffm.) Ahti = *Cladonia verticillata* (Ahti, in litt.)
cetrarioides Schwein. ex Tuck. (Fink 1935) = *C. leporina* (Lendemer & Hewitt 2002)
cladinoides (Nyl.) Zahlbr. = *Cladonia caroliniana*
clavulifera Vainio = *C. subcariosa* (Ahti 2000)
conistea auct. = *C. humilis*
conoidea Ahti = *C. humilis*

cornucopioides auct. (Mohr 1901) = *C. coccifera*
 cornutoradiata (Leighton) Sandst. = *C. subulata*
 corymbosula Nyl. (Fink 1935) Apparent misidentification for North America (Esslinger & Tucker 2009)
 crinita Bertol. = *C. evansii* (Ahti et al. 2016)
 cyathomorpha «(Evans) Evans» (Qian & Klinka 1998) = misidentification for North America
 degenerans (Flörke) Sprengel = *C. phyllophora*
 delessertii Vainio = *C. subfurcata*
 delicata auct. = *C. parasitica*
 diversa Asperges (Lendemer 2006) = misidentification for North America (Ahti, in litt.)
 elongata auct. non (Jacq.) Hoffm. = misidentification for North America, possibly *C. macroceras* or *C. maxima*,
 elongata (Jacq.) Hoffm. = *C. gracilis* var. *elongata*
 endoxantha Vainio (Fink 1935) = *C. hypoxantha* (Thomson 1967)
 exasperatula G. Merr. (Fink 1935) = *C. beaumontii* (Tuck.) Vainio (Thomson 1967)
 flabelliformis Vainio = *C. polydactyla*
 flavescens Vainio = misidentification for North America
 foliacea (Hudson) Willd. = misidentification for North America
 furcata subsp. subrangiformis auct. N. Am. = *C. furcata* (Ahti, in litt.)
 gonecha (Ach.) Asahina = *C. sulphurina*
 gracilescens auct. = *C. stricta*
 graciliformis Zahlbr. North American reports are errors, mostly representing *C. bellidiflora* (Dillman et al. 2012)
 gracilis subsp. nigripes (Nyl.) Ahti = *C. gracilis* subsp. *elongata*
 hammeri Ahti (Ahti & Hammer 2002) = *C. pulvinella* (Pino-Bodas et al. 2013)
 herrei Fink ex J. Hedrick = *C. furcata*
 heteromorpha G. Merr. (Fink 1935) = *Pycnothelia papillaria* (Laundon 1986)
 hookeri Tuck. = *C. bellidiflora*
 hookeri sensu J. W. Thomson = *C. graciliformis*
 humilis var. bourgeanica A.W. Archer = *C. conista*
 innominata Lendemer (Lendemer 2008) = *C. conista* (Pino-Bodas et al. 2012)
 invisus Robbins = *C. ochrochlora*
 japonica Vainio = *C. crispata*
 lepidota auct. = *C. trassii* (Ahti, in litt.)
 leptothallina G. Merr. = *C. peziziformis*
 linearis A. Evans = *Cetradonia linearis*
 macroptera Räsänen = *C. scabriuscula* (fide T. Ahti)
 major (K. G. Hagen) Sandst. = *C. fimbriata*
 merochlorophaea var. novochlorophaea Sipman = *C. novochlorophaea*
 metacorallifera Asahina = *C. straminea* (Timdal & Tønsberg 2012)
 microphylliza G. Merr. (Fink 1935) = *C. beaumontii* (Thomson 1967)
 mitis Sandst. = *Cladonia arbuscula* subsp. *mitis*
 mitrula Tuck. = *C. peziziformis*
 nanodes Robbins ex Sandst. = nom. invalid., identity uncertain
 nemoxyna (Ach.) Arnold = *C. rei*
 norrlinii Vainio = *C. acuminata* var. *acuminata*
 palamaea (Ach.) Fink (Fink 1935) = *C. furcata* (Thomson 1967)
 paludicola (Tuck.) G. Merr. (Fink 1935) = *incrassata* (Thomson 1967)
 papillaria (Ehrh.) Hoffm. = *Pycnothelia papillaria*
 pityrea (Flörke) Fr. = *C. ramulosa*
 polycarpia G. Merr. = *C. subcariosa* (Ahti 2000)
 polycarpoides Nyl. = *C. subcariosa* (Ahti 2000)
 polydactyla (Flörke) Sprengel = misidentification for North America, mostly refers to *C. umbricola* (fide T. Ahti)
 pseudodigitata Gyelnik = *C. coccifera*
 pseudohondoensis Asahina = misidentification for North America

pseudomacilenta Asahina = misidentification for North America
 pseudorangiformis Asahina = *C. wainioi*
 pseudostellata Asahina (Spribille et al. 2010) = *C. uncialis* subsp. *uncialis* (Stenroos et al. 2015)
 psoromica J. P. Dey = *C. dimorphoclada* Robbins (Ahti 2000)
 pulchella Schwein. (Mohr 1901) = *C. didyma*
 pycnoclada (Gaudich.) Nyl. = misidentification for North America (Ahti 1961)
 rangiformis Hoffm. = not in North America
 rappii var. exilior (Abbeyes) Ahti = *C. rappii* var. *rappii*
 reticulata (Russell) Vainio (Fink 1935) = *C. boryi* (Thomson 1967)
 schofieldii Ahti & Brodo (Brodo & Ahti 1996) = *C. pseudalcicornis*
 sobolescens Nyl. ex Vainio = *C. subcariosa* (Ahti 2000)
 stellaris var. aberrans (Abbeyes) ined. = *C. stellaris* (Ahti, in litt.)
 stenophyllodes Vainio (Fink 1935) = misidentification for North America
 stricta var. uliginosa Ahti = *C. uliginosa*
 subapodocarpa Harris, nomen nudum (Hale 1979) = *Cladonia petrophila*
 subcervicornis (Vainio) Kernst. = misidentification for North America
 subclavulifera Asahina = *C. subcariosa* (Ahti 2000)
 subrangiformis auct. N. Am. = *C. furcata*
 subsquamosa (Nyl. ex Leighton) Crombie nom. illeg. = *C. squamosa* var. *subsquamosa*
 subsubulata Nyl. = misidentification for North America
 sylvatica nom. utique rej. s. auct. = *C. arbuscula* subsp. *arbuscula* (Ahti, in litt.)
 theiophila Asahina = *C. vulcani*, but not present in North America
 vulcani Savicz = misidentification for North America
 vulcanica Zoll. & Moritzi = *C. didyma* var. *vulcanica*
 yunnana (Vainio) Abbeyes ex J. C. Wei & Y. M. Jiang = misidentification for North America

CLADOPHIALOPHORA Borelli (Diederich et al. 2013)

***megalosporae** Diederich (Diederich et al. 2013)

***parmeliae** Etayo & Diederich (Kocourková & Knudsen 2009d) Syn.: *Sclerococcum parmeliae*

CLATHROPORINA Müll. Arg.

isidiifera R. C. Harris (Harris 1995a)

subpungens (Malme) R. C. Harris (Harris 1995a)

tetracerae (Ach.) R. C. Harris (Harris 1995a)

+*amygdalina* sensu Fink = *Julella sublactea* (Harris 1995a).

confinis Müll. Arg. = *Porina nuculastrum* (Harris 1995a)

diphloea Zahlbr. = *Astrothelium megaspermum*

+*exiguella* Zahlbr. = *Julella sublactea* (Harris 1995a)

nuculastrum Müll. Arg. = *Porina nuculastrum* (Harris 1995a)

CLAUROUXIA D. Hawksw.

chalybeioides (Nyl.) D. Hawksw. (Fyday 2010)

CLAUZADEA Hafellner & Bellem.

chondrodes (A. Massal.) Clauzade & Cl. Roux (Lendemer et al. 2013)

immersa (Hoffm.) Hafellner & Bellem. Syn.: *Lecidea calcivora*

metzleri (Körber) Clauzade & Cl. Roux ex D. Hawksw. (Hansen 2003)

monticola (Ach.) Hafellner & Bellem. Syns.: *Lecidea monticola*, *L. fuscorubens*, *Protoblastenia monticola*

CLAUZADEANA Cl. Roux

macula (Taylor) Coppins & Rambold (Hertel 1991) Syn.: *Lecanora morioides*

CLAVASCIDIUM Breuss (Breuss 1996)

lacinulatum (Ach.) M. Prieto var. **lacinulatum** (Prieto et al. 2012) Syns.: *Catapyrenium lacinulatum*, *Placidium lacinulatum*

lacinulatum var. **atrans** (Breuss) M. Prieto (Prieto et al. 2012)
lacinulatum var. **erythrostrum** (Breuss) M. Prieto (Prieto et al. 2012)
umbrinum (Breuss) Breuss Syn.: *Placidium umbrinum* (Prieto et al. 2012)

CLIOSTOMUM Fr.

corrugatum (Ach.: Fr.) Fr. Syn.: *Catillaria graniformis*
flavidulum Hafellner & Kalb (Tønsberg 1997)
griffithii (Sm.) Coppins Syns.: *Catillaria griffithii*, *C. tricolor* auct.
leprosum (Räsänen) Holien & Tønsberg
spribillei Goward & Tønsberg (Tønsberg & Goward 2016)
tenerum (Nyl.) Coppins & S. Ekman (Ekman 1997) Syns.: *Lecania tenera*, *Lecanora tenera*
vitellinum Gowan
graniforme (K. G. Hagen) Coppins = *C. corrugatum*
luteolum Gowan = *C. leprosum*
pallens (Kullhem) S. Ekman = *Biatora pallens*

CLYPEOCOCCUM D. Hawksw.

***bisporum** Zhurb. (Zhurbenko 2009b)
***grossum** (Körber) D. Hawksw.
***hypocenomycis** D. Hawksw.
***epicrassum** (H. Olivier) Hafellner & Nav.-Ros. According to Hawksworth (1986), our records probably based on *Polycoccum squamarioides*

COCCOCARPIA Pers.

domingensis Vainio
erythroxyli (Sprengel) Swinscow & Krog
filiformis Arv. (Kaminsky et al. 2013)
palmicola (Sprengel) Arv. & D. J. Galloway
pellita (Ach.) Müll. Arg. (Kaminsky et al. 2013) Syn.: *Pannaria molybdaea*
prostrata Lücking, Aptroot & Sipman (Lücking et al. 2007)
stellata Tuck. Syns.: *Pannaria stellata*, *Parmeliella stellata*
asterella (Nyl.) Vainio = *C. stellata*
cronia (Tuck.) Vainio = *C. palmicola*
incisa Pers. = *C. erythroxyli*
molybdaea Pers. = *C. pellita*
parmelioides (Hooker) Tuck. ex M. A. Curtis = *C. erythroxyli*

COCCOTREMA Müll. Arg.

hahriae T. Sprib. & Tønsberg (Spribille et al. 2010)
maritimum Brodo
minutum (Degel.) R. Sant. (Spribille et al. 2010)
pocillarium (Cummings) Brodo Syns.: *Ochrolechia pacifica*, *Perforaria minuta*

COELOCAULON Link

aculeatum (Schreber) Link = *Cetraria aculeata*
divergens (Ach.) R. Howe = *Bryocaulon divergens*
muricatum (Ach.) J. R. Laundon = *Cetraria muricata*
odontellum (Ach.) R. Howe = *Cetraria odontella*

COENOGONIUM Ehrenb.

congensis C. W. Dodge (Lücking et al. 2011b)
disjunctum Nyl.
geralense (P. Henn) Lücking (Lücking et al. 2011b)
implexum Nyl.
interplexum Nyl.
interpositum Nyl.

isidiatum (G. Thor & Vězda) Lücking, Aptroot & Sipman (Seavey & Seavey 2014a)
isidiiferum (Lücking) Lücking (Seavey & Seavey 2014a)
isidiigerum (Vězda & Osorio) Lücking, Aptroot & Sipman (Seavey & Seavey 2012)
isidiosum (Breuss) Rivas Plata, Lücking, Umaña & Chavez (Seavey & Seavey 2012)
linkii Ehrenb.
luteocitrinum Rivas Plata, Lücking & Umaña (Lücking et al. 2011b)
lutescens (Vězda & Malcolm) Malcolm (Seavey et al. 2014)
luteum (Dicks.) Kalb & Lücking Syn.: *Dimerella lutea* (Lücking & Kalb 2000), *Gyalecta lutea*, *Microphiale lutea*
maritimum F. Seavey & J. Seavey (Seavey et al. 2017)
missouriense J. Davis
moniliforme Tuck.
nepalense (G. Thor & Vězda) Lücking (Seavey & Seavey 2014a)
pineti (Ach.) Lücking & Lumbsch (Lücking, Stuart & Lumbsch 2004) Syns. *Dimerella pineti*, *D. diluta*, *Microphiale diluta*
pusillum (Mont.) Lücking, Aptroot & Sipman (Seavey et al. 2014)
pyrophthalmum (Mont.) Lücking (Seavey et al. 2017)
roumeguerianum (Müll. Arg.) Kalb (Seavey et al. 2014)
stenosporum (Malme) Lücking, Aptroot & Sipman (Seavey et al. 2014)
subdentatum (Vězda & G. Thor) Rivas Plata, Lücking, Umaña & Chavez (Lücking et al. 2011b)
subdilutum (Malme) Lücking, Aptroot & Sipman (Seavey & Seavey 2014a)
subfallaciosum (Vězda & Farkas) Lücking, Aptroot & Sipman (Lücking et al. 2011b)

COLLEMA F. H. Wigg.

coniophilum Goward (Spribille et al. 2009)
curtisporum Degel.
flaccidum (Ach.) Ach. Syn.: *Synechoblastus rupestris*
furfuraceum (Arnold) Du Rietz
furfuraceum var. **luzonense** (Räsänen) Degel.
glebulentum (Nyl. ex Crombie) Degel.
leptaleum Tuck. Syns.: *Synechoblastus leptaleus*, *S. microptychius*
nigrescens (Hudson) DC. Syn.: *Synechoblastus nigrescens*
pulchellum Ach. Syn.: *Leptogium pulchellum*
pulchellum var. **leucopeplum** (Tuck.) Degel.
pulchellum var. **subnigrescens** (Müll. Arg.) Degel.
pustulatum Ach.
ryssoleum (Tuck.) A. Schneider Syn.: *Synechoblastus ryssoleus*
subflaccidum Degel.
subnigrescens Degel.
subparvum Degel.
texanum Tuck. Syns.: *Synechoblastus texanus*, *S. laciniatus*
thamnodes Riddle
 apalachense Tuck. = *Scytinium apalachense* (Otálora et al. 2014)
 arcticum Lynge = *Rostania ceranisca*
 aggregatum (Ach.) Röhl = *Gabura fasciculare*
 auriculatum Hoffm. = *Lathagrium auriforme*
 auriforme (With.) Coppins & J. R. Laundon = *Lathagrium auriforme* (Otálora et al. 2014)
 bachmanianum (Fink) Degel. = *Enchylium bachmanianum* (Otálora et al. 2014)
 bermudanum Tuck. ex Riddle = *C. pustulatum* (Degelius 1974)
 bermudiana Tuck. ex Riddle (Fink 1935) Orthographic variant of *C. bermudanum*
 callibotrys Tuck. = *Rostania callibotrys* (Otálora et al. 2014)
 callopismum A. Massal. = *Scytinium callopismum* (Otálora et al. 2014)
 callopismum var. *rhyparodes* (Nyl.) Degel. = *Scytinium callopismum*
 ceraniscum Nyl. = *Rostania ceranisca* (Otálora et al. 2014)
 cheileum (Ach.) Ach. = *Blennothallia crispa*
 coccophorum Tuck. = *Enchylium coccophorum* (Otálora et al. 2014)

conglomeratum Hoffm. = *Enchylium conglomeratum* (Otálora et al. 2014)
 conglomeratum var. *corynesporum* (Malme) Degel. = *Enchylium conglomeratum*
 conglomeratum var. *crassiusculum* (Malme) Degel. = *Enchylium conglomeratum*
 crispum (Hudson) Weber ex F. H. Wigg. = *Blennothallia crispa* (Otálora et al. 2014)
 cristatellum Tuck. = *Enchylium tenax*
 cristatum (L.) Weber ex F. H. Wigg. = *Lathagrium cristatum* (Otálora et al. 2014)
 cristatum var. *marginale* (Hudson) Degel. = *Lathagrium cristatum*
 cyrtaspis Tuck. = *Enchylium conglomeratum*
 dichotomum (With.) Coppins & J. R. Laundon = *Lathagrium dichotomum* (Otálora et al. 2014)
 dubium B. de Lesd. = *Enchylium coccophorum* (Otálora et al. 2014)
 fasciculare (L.) F. H. Wigg. = *Gabura fasciculare* (Jørgensen 2014)
 fayettense Fink = *C. pustulatum*
 fecundum Degel. = *Blennothallia fecunda* (Otálora et al. 2014)
 fluviatile (Hudson) Steudel = *Lathagrium. dichotomum*
 fragrans (Sm.) Ach. = *Scytinium fragrans* (Otálora et al. 2014)
 furvum (Ach.) Ach. = *Lathagrium fuscovirens* (Otálora et al. 2014)
 fuscovirens (With.) J. R. Laundon = *Lathagrium fuscovirens* (Otálora et al. 2014)
 glaucescens Hoffm. = *Enchylium limosum*
 granosum auct. = *C. auriforme*
 kauaiense H. Magn. = *Scytinium kauaiense* (Otálora et al. 2014)
 laciniatum Nyl. = *C. texanum*
 leucocarpum Hooker & Taylor = misidentification for North America
 leucopeplum (Tuck.) A. Schneider = *C. pulchellum* var. *leucopeplum*
 limosum (Ach.) Ach. = *Enchylium limosum* (Otálora et al. 2014)
 microphyllum Ach. = *Scytinium fragrans*
 microptychium Tuck. = *C. leptaleum*
 multipartitum Sm. = *Callome multipartita* (Otálora et al. 2014)
 myriococcum (Ach.) Ach. = *Lempholemma polyanthes*
 novomexicanum B. de Lesd. = *Enchylium coccophorum*
 nylanderianum Zahlbr. = *C. texanum*
 occultatum Bagl. = *Rostania occultata* (Otálora et al. 2014)
 ohioense (Fink) Zahlbr. = *Enchylium conglomeratum*
 plicatile (Ach.) Ach. = *Scytinium plicatile* (Otálora et al. 2014)
 polycarpon Hoffm. = *Enchylium polycarpon* (Otálora et al. 2014)
 pulposum (Bernh.) Ach. = *Enchylium tenax*
 pycnocarpum Nyl. = *Enchylium conglomeratum*
 quadrifidum D. F. Stone & McCune (Stone & McCune 2010) = *Rostania quadrifida* (McCune et al. 2014b)
 rugosum Kremp. Not known from North America.
 stenophyllum Nyl. = *Lathagrium dichotomum*
 subfurfuraceum Degel. = *C. furfuraceum* var. *luzonense*
 subfurvum sensu Degelius = *C. subflaccidum* Degel.
 subfurvum (Müll. Arg.) Degel. = *C. rugosum*, but this taxon is not known from North America.
 tenax (Sw.) Ach. = *Enchylium tenax* (Otálora et al. 2014)
 tenax var. *ceranoides* (Borrer) Degel. = *Enchylium tenax*
 tenax var. *corallinum* (A. Massal.) Degel. = *Enchylium tenax*
 tenax var. *crustaceum* (Kremp.) Degel. = *Enchylium tenax*
 tenax var. *expansum* Degel. = *Enchylium expansum* (Jørgensen & Goward 2014b)
 tenax var. *substellatum* (H. Magn.) Degel. = *Enchylium tenax*
 tuniforme (Ach.) Ach. = *Lathagrium fuscovirens*
 undulatum Laurer ex Flotow = *Lathagrium undulatum* (Otálora et al. 2014)
 undulatum var. *granulosum* Degel. = *Lathagrium undulatum*
 verruciforme auct. = excluded as doubtful

COLLEMODES Fink = COLLEMA

bachmanianum Fink = *Enchylium bachmanianum*

COLLEMOPSIDIUM Nyl.

- angermannicum** (Degel.) A. Nordin Syn.: *Pyrenocollema strontianense* (Nordin 2002)
bryospilum (Nyl.) Coppins Syn.: *Arthopyrenia bryospilum* (Fryday 2004a)
elegans (R. Sant.) Grube & B. D. Ryan (Grube & Ryan 2002) Syn.: *Pyrenocollema elegans*
foveolatum (A. L. Sm.) F. Mohr (Dillman et al. 2012)
halodytes (Nyl.) Grube & B. D. Ryan (Grube & Ryan 2002) Syns.: *Arthopyrenia halodytes*,
Pyrenocollema halodytes
sublitorale (Leighton) Grube & B. D. Ryan (Grube & Ryan 2002) Syns.: *Arthopyrenia sublitoralis*, *A.*
litoralis auct., *Pyrenocollema sublitorale*

COLLEMOPSIS Nyl. ex Crombie

- segregata* Nyl. ex Hasse = *Lempholemma chalazanum*

COMBEA De Not.

- californica* (Th. Fr.) Follmann & M. Geyer = *Schizopelte californica*

CONIAMBIGUA Etayo & Diederich

- ***phaeographidis** Etayo & Diederich (Diederich 2003)

CONIARTHONIA Grube

- gregarina** (Willey) Grube (Grube 2001) Syns: *Arthonia gregarina*, *Arthothelium gregarinum*
pyrrhula (Nyl.) Grube (Grube 2001) Syn.: *Arthonia pyrrhula*

CONIOCYBE Ach.

- furfuracea* (L.) Ach. = *Chaenotheca furfuracea*
gracilescens Willey = *Chaenotheca chrysocephala* (Selva 2004)
gracillima Vainio = *Chaenotheca gracillima*
nivea (Hoffm.) Arnold non Tuck. & Mont. = *Sclerophora nivea*
pallida (Pers.) Fr. = *Sclerophora nivea*
sulphurea (Retz.) Nyl. = *Chaenotheca brachypoda*

CONIOCYBOPSIS Vainio

- arenaria* (Hampe ex A. Massal.) Vainio = *Microcalicium arenarium*

CONOTREMA Tuck.

- albonigrum* Zahlbr. = *Trinathotrema stictideum*
urceolatum (Ach.) Tuck. = *Stictis urceolatum*

CONSTRICOTOLUMINA Lücking, M. P. Nelsen & Aptroot

- cinchonae** (Ach.) Lücking, M. P. Nelsen & Aptroot Syns: *Arthopyrenia cinchonae*, *Pyrenula*
cinchonae (Aptroot & Lücking 2016)
leucostoma (Müll. Arg.) Lücking, M. P. Nelsen & Aptroot Syn.: *Arthopyrenia confluens* (Aptroot &
Lücking 2016)
lyrata (R. C. Harris) Lücking, M. P. Nelsen & Aptroot Syn.: *Arthopyrenia lyrata* (Aptroot & Lücking
2016)
majuscula (Nyl.) Lücking, M. P. Nelsen & Aptroot Syn.: *Arthopyrenia majuscula* (Aptroot & Lücking
2016)
malaccitula (Nyl.) Lücking, M. P. Nelsen & Aptroot Syn.: *Arthopyrenia malaccitula* (Aptroot &
Lücking 2016)
planorbis (Ach.) Lücking, M. P. Nelsen & Aptroot Syn.: *Arthopyrenia planorbis* (Aptroot & Lücking
2016)

CORA Fr. (Lawrey et al. 2009)

- glabrata** (Sprengel) Fr. Syn.: *Dictyonema glabratum*
pavonia (Sw.) Fr. = *Cora glabrata*, for North American reports

CORISCIMUM Vainio = LICHENOMPHALIA
viride (Ach.) Vainio = Lichenomphalia hudsoniana

CORNICULARIA (Schreber) Hoffm.
normoerica (Gunn.) Du Rietz
aculeata (Schreber) Ach. = Cetraria aculeata
californica (Tuck.) Du Rietz = Kaernefeltia californica
divergens Ach. = Bryocaulon divergens
fibrillosa (Ach.) Halsey = Bryoria furcellata
muricata (Ach.) Ach. = Cetraria muricata
odontella (Ach.) Westend. = Cetraria odontella
pseudosatoana Asahina = Bryocaulon pseudosatoanum

CORNUTISPORA Piroz.
***ciliata** Kalb (Cole & Hawksw. 2001)
***intermedia** Punith & D. Hawksw. (Esslinger & Egan 1995)
***lichenicola** D. Hawksw. & B. Sutton (Kalb et al. 1995)
***pyramidalis** Etayo (McMullin et al. 2017)

CORTICIFRAGA D. Hawksw. & R. Sant.
***chugachiana** Zhurb. (Zhurbenko 2007a)
***fuckelii** (Rehm) D. Hawksw. & R. Sant. Syn.: Phragmonaevia fuckelii
***peltigerae** (Nyl.) D. Hawksw. & R. Sant. (Alstrup & Cole 1998)
***santessonii** Zhurb. & Zavarzin (Zhurbenko 2007a)
***scrobiculatae** Pérez-Ortega (Spribille et al. 2010)

CORYNESPORA Güssow
laevistipitata (M. S. Cole & D. Hawksw.) Heuchert & U. Braun Syn.: Taeniolella laevistipitata
(Heuchert & Braun 2006)

CRATIRIA Marbach (Marbach 2000)
americana (Fée) Kalb & Marbach Syn.: Buellia modesta
lauricassiae (Fée) Marbach Syn.: Buellia lauricassiae
melanochlora (Kremp.) Marbach Syn.: Buellia melanochlora

CRESPOA (D. Hawksw.) Lendemer & Hodgkinson (Lendemer & Hodgkinson 2012)
crozalsiana (B. de Lesd. ex Harm.) Lendemer & Hodgkinson (Lendemer & Hodgkinson 2012) Syns.:
Canoparmelia crozalsiana, Parmelia crozalsiana, Pseudoparmelia crozalsiana

CRESPONEA Egea & Torrente
chloroconia (Tuck.) Egea & Torrente Syn.: Lecanactis chloroconia
flava (Vainio) Egea & Torrente (Harris 1995a)
lepricuri (Mont.) Egea & Torrente
premnea (Ach.) Egea & Torrente Syn.: Lecanactis premnea
premnea var. **saxicola** (Leighton) Egea & Torrente
proximata (Nyl.) Egea & Torrente

CROCEDIA Link (Galloway & Elix 2013)
aurata (Ach.) Link Syns.: Pseudocyphellaria aurata, Sticta aurata

CROCYNIA (Ach.) A. Massal.
gossypina (Sw.) A. Massal.
pyxinoides Nyl.
aliciae Hue = Lepraria finkii (fide J. Lendemer)
alpina B. de Lesd. = Lepraria neglecta

americana B. de Lesd. = Lepraria finkii (fide J. Lendemer)
finkii B. de Lesd. = Lepraria finkii
membranacea (Dickson) Zahlbr. = Lepraria membranacea
moxleyi Plitt = non-lichenized Septobasidium sp.
neglecta (Nyl.) Hue = Lepraria neglecta

CRYPTODISCUS Corda

***cladoniicola** (D. Hawksw. & R. Sant.) Pino-Botas, Zhurb. & S. Stenroos Syn.: Lettauia cladoniicola (Pino-Bodas et al. 2017)
***epicladonia** Zhurb. & Pino-Bodas (Pino-Bodas et al. 2017)
***galaninae** Zhurb. & Pino-Bodas (Pino-Bodas et al. 2017)
gloeocapsa (Nitschke ex Arnold) Baloch, Gilenstam & Wedin Syn.: Bryophagus gloeocapsa (Baloch et al. 2009)

CRYPTOLECHIA A. Massal.

carneolutea (Turner) A. Massal. Syns.: Gyalectina carneolutea, Gyalecta carneolutea
nana (Tuck.) D. Hawksw. & Dibben (Lücking et al. 2011b)

CRYPTOTHECIA Stirton

calusarum F. Seavey & J. Seavey (Seavey et al. 2017)
effusa (Müll. Arg.) R. Sant. (Lücking et al. 2011b)
evergladensis Seavey (Seavey 2009)
fuscopunctata F. Seavey & J. Seavey (Seavey & Seavey 2014a)
miniata Vainio ex Lücking (Lücking et al. 2011b)
punctosorediata Sparrius (Lücking et al. 2011b)
randallii F. Seavey & J. Seavey (Seavey et al. 2017)
striata G. Thor Syn.: Chiodecton montagnei sensu auct. N.A. (Thor 1991)
submacrocephala F. Seavey & J. Seavey (Seavey et al. 2017)
rubrocincta (Ehrenb. : Fr.) G. Thor = Herpothallon rubrocinctum

CRYPTOTHELE Th. Fr.

granuliforme (Nyl.) Henssen Syn.: Pyrenopsidium granuliforme, Pyrenopsis granuliformis
permiscens (Nyl.) Th. Fr. Syn.: Pyrenopsis phylliscina

CULBERSONIA Essl. (Esslinger 2000a)

nubila (Moberg) Essl. (Esslinger 2002b)
americana Essl. = C. nubila

CYANISTICTA Gyelnik

epiflavoides Gyelnik (Gyelnik 1931) = Pseudocyphellaria epiflavoides

CYBEBE Tibell = **CHAENOTHECA** (Tibell 2001)

gracilenta (Ach.) Tibell = Chaenotheca gracilenta (Tibell 2001)

CYCLOHYMENIA McCune & M. J. Curtis (McCune et al. 2017)

epilithica McCune & M. J. Curtis

CYPHELIOPSIS Vainio = **THELOMMA**

bolanderi (Tuck.) Vainio = Thelomma mammosum

CYPHELIUM Ach. = **CALICIUM** (Prieto & Wedin 2017)

brachysporum Nádv. Identity and disposition not indicated by Prieto & Wedin 2017
andersonii Herre = Thelomma californicum
brunneum W. A. Weber = Thelomma brunneum
caliciforme (Flotow) Zahlbr. = Pseudothelomma occidentale for most North American records
californicum (Tuck.) Zahlbr. = Thelomma californicum

carolinianum (Tuck.) Zahlbr. = *Calicium carolinianum*
 chloroconium (Tuck.) Zahlbr. = *Acolium chloroconium*
 farlowii (Tuck. ex Herre) Herre = *Thelomma californicum*
 inquinans (Sm.) Trevisan = *Acolium inquinans*
 karelicum (Vainio) Räsänen = *Acolium karelicum*
 lucidum (Th. Fr.) Th. Fr. = *Calicium lucidum*
 notarisii (Tul.) Blomb. & Forssell = *Calicium notarisii*
 occidentale Herre = *Pseudothelomma occidentale*
 ocellatum (Körber) Trevisan = *Pseudothelomma ocellatum*
 pinicola Tibell = *Calicium pinicola*
 sancti-jacobi (Tuck.) Zahlbr. = *Texosporium sancti-jacobi*
 *sessile (Pers.) Trevisan = *Acolium sessile*
 tigillare (Ach.) Ach. = *Calicium tigillare*
 tigillare subsp. notarisii (Tul.) W. A. Weber = *Calicum notarisii*
 trachylioides (Nyl. ex Branth & Rostrup) Erichsen = *Calicium trachylioides*
 ventricosulum (Müll. Arg.) Zahlbr. = *Acolium inquinans*

CYPHOBASIDIUM Millanes, Diederich & Wedin

***hypogymniicola** (Diederich & Ahti) Millanes, Diederich & Wedin Syn.: *Cystobasidium hypogymniicola* (Millanes et al. 2016)
 ***usneicola** (Diederich & Alstrup) Millanes, Diederich & Wedin Syn.: *Cystobasidium usneicola* (Millanes et al. 2016)

CYSTOBASIDIUM (Lagerh.) Neuhoff

*hypogymniicola Diederich & Ahti (Diederich 1996) = *Cyphobasidium hypogymniicola* (Millanes et al. 2016)
 *usneicola Diederich & Alstrup (Diederich 1996) = *Cyphobasidium usneicola* (Millanes et al. 2016)

CYSTOCOLEUS Thwaites

ebeneus (Dillwyn) Thwaites

DACAMPIA A. Massal.

***engeliana** (Sauter) A. Massal. (Henssen 1995)
hookeri (Borrer) A. Massal.
 ***lecaniae** Kocourk. & K. Knudsen (Kocourkova & Knudsen 2010)
 ***rufescentis** (Vouaux) D. Hawksw. (Zhurbenko & Daniëls 2003)

DACTYLINA Nyl.

arctica (Hooker f.) Nyl.
beringica C. D. Bird & J. W. Thomson (Treated as subsp. of *D. arctica* by Kärnefelt & Thell 1996)
ramulosa (Hooker f.) Tuck.
 madreporiformis (Ach.) Tuck = *Allocetraria madreporiformis*

DACTYLOSPORA Körber

***aeruginosa** Holien & Ihlen (Ihlen et al. 2004a)
 ***ahtii** Zhurb. & Pino-Bodas (Pino-Bodas et al. 2017)
 ***amygdalariae** Triebel
 ***athallina** (Müll. Arg.) Hafellner Syn.: *Karschia athallina*
 ***attendenda** (Nyl.) Arnold
 ***borealis** Holien & Ihlen (Ihlen et al. 2004a)
 ***deminuta** (Th. Fr.) Triebel
 ***frigida** Hafellner (Dillman et al. 2012)
 ***glaucomarioides** (Willey ex Tuck.) Hafellner Syn.: *Buellia glaucomarioides*, *Leciographa "glaucomarioidea"*
 ***inquilina** (Tuck.) Hafellner Syn.: *Buellia inquilina*, *Buelliella inquilina*
 ***lobariella** (Nyl.) Hafellner Syn.: *Buelliella nuttallii*

- ***lurida** Hafellner (Harris & Lendemer 2005)
- ***parasitica** (Flörke ex Sprengel) Zopf Syn.: *Leciographa inspersa*, *Sclerophyton occidentale*
- ***parellaria** (Nyl.) Arnold
- ***pertusariicola** (Willey ex Tuck.) Hafellner Syn.: *Buellia pertusariicola*, *Leciographa pertusariicola*
- ***pleiosperma** Triebel (Hafellner et al. 2002)
- ***porphyrea** Hafellner & Kalb (Etayo & Breuss 1998)
- ***purpurascens** Triebel
- ***rhyparizae** Arnold (Zhurbenko 2013)
- ***saxatilis** (Schaerer) Hafellner var. **saxatilis** Syn.: *Buelliella saxatilis*
- ***suburceolata** Coppins & Fryday (McMullin et al. 2017)
- ***urceolata** (Th. Fr.) Arnold Syn.: *Leciographa urceolata*

DEGELIA Arv. & D. J. Galloway

- plumbea* (Lightf.) P. M. Jørg. & P. James = *Pectenium plumbea* (Ekman et al. 2014)

DENDRISCOCAULON Nyl.

- intricatum** (Nyl.) Henssen Syns.: *Leptogidium intricatum*, *Polychidium intricatum*
- umhausense** (Auersw.) Degel. Syn.: *Polychidium umhausense*

DENDRISCOSTICTA B. Moncada & Lücking (Moncada et al. 2013)

- oroborealis** (Goward & Tønsberg) B. Moncada & Lücking Syn.: *Sticta oroborealis* (Moncada et al. 2013)
- wrightii** (Tuck.) B. Moncada & Lücking Syn.: *Sticta wrightii* (Moncada et al. 2013)

DENDRODOCHIUM Bonord

- ***subeffusum** Ellis & Everh.

DENDROGRAPHA Darb.

- alectoroides** Sundin & Tehler (Sundin & Tehler 1996)
- conformis** (Tehler) Ertz & Tehler (Ertz & Tehler 2011)
- decolorans** (Turner & Borrer ex Sm.) Ertz & Tehler (Ertz & Tehler 2011)
- franciscana** (Zahlbr. ex Herre) Ertz & Tehler (Ertz & Tehler 2011)
- leucophaea** (Tuck.) Darb. Syn.: *Roccella leucophaea*
- minor* Darb. = *D. leucophaea* (Tuck.) Darb. (Sundin & Tehler 1996)

DERMATINA (Almq.) Zahlbr. = PEZICULA

- "*pyrenocarpa*" (Nyl.) Zahlbr. = *Mycoporum compositum*

DERMATISCUM Nyl.

- catawbense* (Willey) Nyl. = *Dermiscellum oulocheila*

DERMATOCARPON Eschw.

- americanum** Vainio (Heidmarsson & Breuss 2004)
- arenosaxi** Amtoft (Amtoft et al. 2008)
- arnoldianum** Degel.
- atrogranulosum** Breuss (Breuss 2003)
- bachmannii** Anders (Heidmarsson & Breuss 2004)
- dolomiticum** Amtoft (Amtoft et al. 2008)
- intestiniforme** (Körber) Hasse
- leptophyllodes** (Nyl.) Vainio ex Hav. (Heidmarsson & Breuss 2004, Heidmarsson 2017)
- linkolae** Räsänen (Goward et al. 1996)
- lorenzianum** Anders
- luridum** (With.) J. R. Laundon
- luridum** var. **xerophilum** Amtoft (Amtoft et al. 2008)
- meiophyllizum** Vainio (Glavich & Geiser 2004)
- miniatum** (L.) W. Mann Syn.: *Endocarpon miniatum*

moulinsii (Mont.) Zahlbr.
muhlenbergii (Ach.) Müll. Arg. (Amtoft et al. 2008)
multifolium Amtoft (Amtoft et al. 2008)
polyphyllizum (Nyl.) Blomb. & Forssell (Heidmarsson & Breuss 2004)
reticulatum H. Magn.
rivulorum (Arnold) Dalla Torre & Sarnth.
 [Entosthelia saxicola B. de Lesd.]
schaechtelinii Werner (Heidmarsson & Breuss 2004)
taminium Heipmarsson (Heidmarsson 2003)
tenue (Müll. Arg.) Heidmarsson (Heidmarsson 2003)
tomentulosum Amtoft (Amtoft 2006)
vellereum Zschacke
 acarosporoides Zahlbr. = Placidium acarosporoides
 aquaticum (Weiss) Zahlbr. = D. luridum
 arboreum (Schwein.) Fink = Placidium arboreum
 cinereum (Pers.) Th. Fr. = Catapyrenium cinereum
 #compactum (A. Massal.) Lettau = Heteroplacidium compactum
 daedaleum (Kremp.) Th. Fr. = Catapyrenium daedaleum
 fluviatile (Weber) Th. Fr. = D. luridum
 granulosum (B. de Lesd.) Zahlbr. = Catapyrenium granulosum
 hepaticum auct. = Placidium squamulosum
 hepaticum (Ach.) Th. Fr. = Catapyrenium cinereum
 heppioides Zahlbr. = Placopyrenium heppioides
 lachneum (Ach.) A. L. Sm. = Placidium lachneum
 lecideoides (A. Massal.) Hasse = Placopyrenium lecideoides
 leptophyllum (Ach.) Lång = D. miniatum
 lyngei Servit Reported from Greenland and Iceland but not U. S. or Canada
 michelii (A. Massal.) Zwackh = Placidium michelii
 miniatum (L.) W. Mann var. complicatum (Lightf.) Th. Fr. = D. miniatum (Heidmarsson 2003)
 novomexicanum (B. de Lesd.) Zahlbr. = Placidium acarosporoides
 peltatum (Taylor) Zahlbr. = a sterile psoroid lichen; a misidentification for North America
 plumbeum (B. de Lesd.) Zahlbr. = Verrucaria inficiens
 polyphyllum (Wulfen) Dalla Torre & Sarnth. = D. intestiniforme
 rufescens (Ach.) Th. Fr. = Placidium rufescens
 rupicola (B. de Lesd.) Zahlbr. = Verrucaria othmarii (Knudsen & Kocourková 2012a)
 squamellum (Nyl.) Herre = Catapyrenium squamellum
 tuckermanii (Rav. ex Mont.) Zahlbr. = Placidium arboreum
 vagans Imshaug = D. reticulatum H. Magn.
 waltheri (Kremp.) Blomb. & Forssell = Involucropyrenidium waltheri
 weberi (Ach.) W. Mann = D. luridum
 zahlbruckneri Hasse = Placopyrenium stanfordii

DERMISCELLUM Hafellner, H. Mayrhofer & Poelt

oulocheila (Tuck.) Lendemer Syns.: Dermatiscum catawbense, Opegrapha oulocheila (Lendemer 2003)
 catawbense (Willey) Hafellner & Poelt = D. Oulocheila

DESMAZIERIA Mont.

cephalota (Tuck.) Follmann & Huneck = Vermilacinia cephalota
 ceruchis (Ach.) Trevisan = Vermilacinia ceruchis, but absent from North America (Spjut 1996)
 combeoides (Nyl.) Follmann & Huneck = Vermilacinia combeoides
 evernioides (Nyl.) Follmann & Huneck = Ramalina lacera
 homalea (Ach.) Mont. = Niebla homalea
 peruviana (Ach.) Follmann & Huneck = Ramalina peruviana
 testudinaria (Nyl.) Follmann & Huneck = Niebla homalea

DIBAEIS Clem.

absoluta (Tuck.) Kalb & Gierl Syn.: *Baeomyces absolutus*
baeomyces (L. f.) Rambold & Hertel Syn.: *Baeomyces roseus*
fungoides (Sw.) Kalb & Gierl = A tropical species, not in North America
rosea (Pers.) Clem. = *D. baeomyces*

DICTYOCATENULATA Finley & E. F. Morris

alba Finley & E. F. Morris (Lendemer & Harris 2004)

DICTYOMERIDIUM Aptroot, M. P. Nelsen & Lücking

amylosporium (Vainio) Aptroot, M. P. Nelsen & Lücking Syns.: *Campylothelium amylosporium*,
Polyblastiopsis dealbens (Aptroot & Lücking 2016)
proponens (Aptroot, M. P. Nelsen & Lücking) Aptroot, M. P. Nelsen & Lücking Syn.: *Polymeridium*
proponens (Aptroot & Lücking 2016)

DICTYONEMA C. Agardh

moorei (Nyl.) Henssen
phyllogenum (Müll. Arg.) Zahlbr. (Lücking et al. 2011b)
sericeum (Sw.) Berk.
glabratum (Sprengel) D. Hawksw. = *Cora glabrata*
guadalupense (Rabenh.) Zahlbr. = *D. sericeum*
irpicinum Mont. = misidentification for North America
pavonium (Sw.) Parmasto = *Cora glabrata*, for North American reports

DIDYMELLOPSIS (P. A. Saccardo) Clem. & Shear

***latitans** (Nyl.) Clem. & Shear (Zhurbenko 2009a)
***pulposi** (Zopf) Grube & Hafellner (Zhurbenko 2013)

DIDYMOCYRTIS Vainio

***bryonthae** (Arnold) Hafellner Syn.: *Polycoccum bryonthae* (Ertz et al. 2015a)
***cladoniicola** (Diederich, Kocourk. & Etayo) Ertz & Diederich Syn.: *Phoma cladoniicola* (Ertz et al. 2015a)
***consimilis** Vainio (Ertz et al. 2015a)
***epiphyscia** Ertz & Diederich Syn.: *Phoma physciicola* (Ertz et al. 2015a)
***melanelixiae** (Brackel) Diederich, Harris & Etayo (Ertz et al. 2015a)
***xanthomendozae** (Diederich & Freebury) Diederich & Freebury Syn.: *Phoma xanthomendozae* (Ertz et al. 2015a)

DIDYMOSPHAERIA Fuckel

***epicrassa** (H. Olivier) Vouaux = *Clypeococcum epicrassum*, but see note there

DIGITOTHYREA P. P. Moreno & Egea

divergens (Henssen) Moreno & Egea (Sweat et al. 2004)
polyglossa (Nyl.) P. P. Moreno & Egea (Schultz 2002b)

DIMELAENA Norman

#**californica** (H. Magn.) Sheard
#**lichenicola** K. Knudsen, Sheard, Kocourk. & H. Mayrhofer (Knudsen et al. 2013b)
oreina (Ach.) Norman Syns.: *Rinodina oreina*, *R. hueana*, *R. novomexicana*, *R. suboreina*
radiata (Tuck.) Müll. Arg. (Matzer et al. 1996) Syns.: *Buellia radiata*, *Rinodina radiata*
tenuis (Müll. Arg.) H. Mayrhofer & Wippel (Beeching 2007)
thysanota (Tuck.) Hale & W. L. Culb. Syn.: *Rinodina thysanota*
weberi Sheard
angelica (Stizenb.) Hale & W. L. Culb. = *Mobergia angelica*
chrysomelaena (Ach.) Hale & W. L. Culb. = *Rinodina chrysomelaena*

novomexicana (B. de Lesd.) Hale & W. L. Culb. = D. oreina
suboreina (B. de Lesd.) Hale & W. L. Culb. = D. oreina

DIMERELLA Trevisan = COENOGONIUM (Lücking & Kalb 2000)

diluta (Pers.) Trevisan = Coenogonium pineti
lutea (Dickson) Trevisan = Coenogonium luteum
pineti (Ach.) Vězda = Coenogonium pineti

DIMIDIOGRAPHIA Ertz & Tehler (Ertz & Tehler 2011)

longissima (Müll. Arg.) Ertz & Tehler (Ertz & Tehler 2011) Syn.: Graphis, atrorubens, Opegrapha longissimi

DINEMASPORIUM Lév.

***strigosum** (Fr.) Sacc. (Alstrup & Cole 1998)

DIORYGMA Eschw.

antillarum (Vainio) Nelsen, Lücking & Rivas Plata (Nelsen et al. 2012) Syn.: Herpothallon antillarum
basinigrum F. Seavey & J. Seavey (Seavey & Seavey 2014a)
junghuhnii (Mont. & Bosch) Kalb, Staiger & Elix (Tripp et al. 2010)
microsporum M. Cáceres & Lücking (Lumbsch et al. 2011; Lücking et al. 2011b)
poitaei (Fée) Kalb, Staiger & Elix (Kalb et al. 2004) Syn.: Graphina virginea
pruinoseum (Ehrh.) Kalb Syn.: Graphina platyleuca (Tripp et al. 2010)
reniforme (Fée) Kalb, Staiger, & Elix (Tripp et al. 2010)

DIPLOICIA A. Massal.

canescens (Dickson) A. Massal. Syn.: Buellia canescens

DIPLOLAEVIOPSIS Giralt & D. Hawksw.

***ranula** Giralt & D. Hawksw. (Diederich 2003)

DIPLOSCHISTELLA Vainio

athalloides (Nyl.) Lücking, Knudsen & Fryday (Lücking et al. 2007) Syn.: Rhizocarpon athalloides

DIPLOSCHISTES Norman

actinostomus (Ach.) Zahlbr. Syn.: Urceolaria actinostoma
aeneus (Müll. Arg.) Lumbsch
arabiensis Lumbsch
badius Lumbsch & Elix
caesioplumbeus (Nyl.) Vainio (Lumbsch 2002)
candidissimus (Kremp.) Zahlbr. (Esslinger & Egan 1995)
diacapsis (Ach.) Lumbsch Syn.: Urceolaria albissima
gypsaceus (Ach.) Zahlbr.
hypoleucus Zahlbr.
muscorum (Scop.) R. Sant. subsp. **muscorum**
scruposus (Schreber) Norman Syn.: Urceolaria scruposa
albissimus (Ach.) Dalla Torre & Sarnth. = D. diacapsis
bisporus (Bagl.) J. Steiner = Ingvariella bisporus
bryophilus (Ehrh. ex Ach.) Zahlbr. = D. muscorum subsp. muscorum
canadensis Räsänen = D. muscorum subsp. muscorum
scruposus (Schreber) Norman var. parasiticus (Sommerf.) Zahlbr. = D. muscorum
stramineus Zahlbr. = D. hypoleucus

DIPLOTOMMA Flotow

alboatrum (Hoffm.) Flotow Syns.: Buellia alboatra, Rhizocarpon alboatrum
ambiguum (Ach.) Flagey Syn.: Buellia ambigua
chlorophaeum (Hepp ex Leighton) Szatala Syns.: Rhizocarpon chlorophaeum, Buellia chlorophaea

nivalis (Bagl. & Carestia) Hafellner (Hafellner & Türk 1995) Syn.: *Buellia nivalis*
penichrum (Tuck.) Szatala Syns.: *Buellia penichra*, *Rhizocarpon penichrum*
venustum (Körber) Körber Syn.: *Buellia epipolia*, *B. venusta*, *B. lecanoroides*, *Rhizocarpon cumulatum*
epipolium sensu auct. = *D. venustum* (Nordin 1996, McCune 2017)
epipolium (Ach.) Arnold = *D. alboatrum* (Nordin 1996, McCune 2017)
 **pulverulentum* (Anzi) *D. Hawksw.* (Molina et al. 2002) = *Tetramelas pulverulentus*

DIRINA Fr.

catalinariae Hasse
massiliensis Durieu & Mont. (Harris & Ladd 2005; reported as f. *sorediata*)
paradoxa (Fée) Tehler
approximata Zahlbr. subsp. *hioramii* (B. de Lesd.) Tehler = *D. paradoxa*
calcicola Sparrius (Sparrius 2004a) = *Fulvophyton calcicola* (Tehler et al. 2013)
californica Tuck. = *Sigridea californica*
franciscana Zahlbr. ex Herre = *Dendrographa franciscana*
hassei Zahlbr. = *Sigridea californica*
rediunta Hasse = *Schismatomma rediunta*

DIRINARIA (Tuck.) Clem.

aegialita (Afz.) B. J. Moore Syn.: *Physcia aspera*, *P. aegialita*
applanata (Fée) D. D. Awasthi
confluens (Fr.) D. D. Awasthi
confusa D. D. Awasthi
confusa var. **saxicola** (Räsänen) D. D. Awasthi
frostii (Tuck.) Hale & W. L. Culb. Syns.: *Physcia frostii*, *Pyxine frostii*
leopoldii (Stein) D. D. Awasthi
neotropica Kalb (Kalb 2004a)
papillulifera (Nyl.) D. D. Awasthi
picta (Sw.) Clem. & Shear Syns.: *Physcia picta*, *Pyxine picta*
purpurascens (Vainio) B. J. Moore Syn.: *Physcia purpurascens*
aspera (H. Magn.) D. D. Awasthi = *D. aegialita*

DISCOTHECIUM Zopf = **ENDOCOCCUS** Nyl.

**gemmiferum* Vouaux = an uncertain species of *Endococcus*

DISTOPYRENIS Aptroot

americana Aptroot
pachyospora Aptroot (Harris 1995a)
quercicola R. C. Harris (Harris 1995a)
submuriformis R. C. Harris (Harris 1995a)

DITREMIS Clem. = **ANISOMERIDIUM**

albiseda (Nyl.) R. C. Harris = *Anisomeridium albisedum*
ambigua (Zahlbr.) R. C. Harris = *Anisomeridium ambiguum*
anisoloba (Müll. Arg.) R. C. Harris = *Anisomeridium anisolobum*
biformis (Borrer) R. C. Harris = *Anisomeridium biforme*
carinthiaca (Steiner) R. C. Harris = *Anisomeridium carinthiacum*
distans (Willey) R. C. Harris = *Anisomeridium distans*
finkii R. C. Harris = *Anisomeridium finkii*
leucochlora (Müll. Arg.) R. C. Harris = *Anisomeridium leucochlorum*
macrospora R. C. Harris = *Anisomeridium aureopunctatum*
nyssigena (Ellis & Everh.) R. C. Harris = *Anisomeridium polypori*
quaternaria R. C. Harris = *Anisomeridium quaternarium*
sanfordensis (Zahlbr.) R. C. Harris = *Anisomeridium excaecariae*
subprostans (Nyl.) R. C. Harris = *Anisomeridium subprostans*

tamarindii (Fée) R. C. Harris = Anisomeridium tamarindii
terminata (Nyl.) R. C. Harris = Anisomeridium terminatum
tuckerae (R. C. Harris) R. C. Harris = Anisomeridium tuckerae

DUFOUREA Ach.
madreporiformis (Ach.) Ach. = Allocetraria madreporiformis

DYPLOLABIA A. Massal.
afzelii (Ach.) A. Massal. Syn.: Graphis afzelii (Staiger 2002)

ECHINODISCUS Etayo & Diederich
*lesdainii (Vouaux) Etayo & Diederich (Kocourková et al. 2010)

ECHINOPLACA Fée
areolata Lücking & W. R. Buck (Lücking et al. 2007)
basalis W. B. Sanders & Lücking (Sanders & Lücking 2015)
furcata Sérus. subsp. neotropica Lücking (Lücking et al. 2007)
intercedens Vězda
leucotrichoides (Müll. Arg.) R. Sant. (Lücking et al. 2011b)
lucernifera Kalb & Vězda (Lücking et al. 2007)
pellicula (Müll. Arg.) R. Sant.
similis Kalb & Vězda (Lücking et al. 2007)
tetraplaca (Zahlbr.) Lücking (Lücking (Lücking et al. 2007)

ECHINOTHECIUM Zopf
*aerophilum Alstrup & M. S. Cole (Alstrup & Cole 1998)
*reticulatum Zopf = Sphaerellothecium reticulatum

EDRUDIA W. P. Jordan
constipans (Nyl.) W. P. Jordan Syn.: Caloplaca constipans, Lecanora constipans

EIGLERA Hafellner
flavida (Hepp) Hafellner Syns.: Lecanora flavida, Aspicilia flavida

ELIXIA Lumbsch
flexella (Ach.) Lumbsch (Spribille & Björk 2008)

ELLISEMBIA Subram.
*lichenicola Heuchert & U. Braun (Heuchert & Braun 2006)

ENCHYLIUM (Ach.) Gray (Otálora et al. 2014)
bachmanianum (Fink) Otálora, P. M. Jørg. & Wedin Syns.: Collema bachmanianum, Collemodes bachmanianum
coccophorum (Tuck.) Otálora, P. M. Jørg. & Wedin Syns.: Collema coccophorum, C. dubium, C. novomexicanum, Synechoblastus coccophorus
conglomeratum (Hoffm.) Otálora, P. M. Jørg. & Wedin Syns.: Collema conglomeratum, C. pycnocarpum, Synechoblastus ohioense, S. cyrtaspis, S. pycnocarpus
expansum (Degel.) P. M. Jørg. Syn.: Collema tenax var. expansum (Jørgensen & Goward 2015)
limosum (Ach.) Otálora, P. M. Jørg. & Wedin Syns.: Collema glaucescens, C. limosum
polycarpon (Hoffm.) Otálora, P. M. Jørg. & Wedin Syns.: Collema polycarpon, Synechoblastus polycarpus, S. wyomingensis
substellatum (H. Magn.) P. M. Jørg. (Jørgensen & Goward 2015)
tenax (Sw.) Gray Syn.: Collema tenax

ENDOCARPON Hedwig

adscendens (Anzi) Müll. Arg.
adsurgens Vainio
lepidallum Nyl.
loscosii Müll. Arg. (Breuss 2002a)
pallidulum (Nyl.) Nyl. (Breuss 2002a)
pallidum Ach.
petrolepideum (Nyl.) Nyl.
pseudosubnitescens Breuss (Knudsen 2005b)
pulvinatum Th. Fr. Syns.: *Pyrenothamnia brandegei*, *P. spraguei*
pusillum Hedwig
schisticola B. de Lesd. (Breuss 2002a)
simplicatum (Nyl.) Nyl. (Breuss 2002a)
subnitescens Nyl.
tortuosum Herre
 arboreum Schwein. (Mohr 1901) = *Placidium arboreum*
 diffractellum (Nyl.) Gueidan & Cl. Roux (Gueidan et al. 2007) = *Willeya diffractella* (Gueidan & Lendemer 2015)
 drummondii (Tuck.) M. Choisy = *Staurothele drummondii*
 miniatum (L.) Schaerer (Mohr 1901) = *Dermatocarpon miniatum*
 moenium Vainio = *Acarospora moenium*
 monicae Zahlbr. = *Staurothele monicae*
 *ochroleucum Tuck. = *Heterocarpon ochroleucum*
 tenuissimum (Degel.) Lendemer & E. Tripp = *Willeya diffractella* (Gueidan & Lendemer 2015)
 tuckermanii Rav. ex Mont. = *Placidium arboreum* (Lendemer & Yahr 2004)
 wilmsoides Zahlbr. = *Staurothele drummondii*

ENDOCOCCUS Nyl.

***apiciicola** (J. Steiner) R. Sant. (Diederich 2003)
 ***incrassatus** Etayo & Breuss (Knudsen & Kocourková 2008b)
 ***macrosporus** (Arnold) Nyl. (Hafellner et al. 2002)
 ***matzeri** D. Hawksw. & Iturr. (Knudsen & Kocourková 2009b)
 ***nanellus** Ohlert (Diederich 2003)
 ***oreinae** Hafellner (Hafellner et al. 2002)
 ***perpusillus** Nyl.
 ***propinquus** (Körber) D. Hawksw.
 ***rugulosus** Nyl. (Knudsen & Kocourková 2010b)
 ***stigma** (Körber) Stizenb. (Hafellner et al. 2002)
 ***thelommatis** Kocourk. & K. Knudsen (Kocourková & Knudsen 2011)
 ***verrucosus** Hafellner (Hafellner et al. 2002)
 ***zahlbrucknerellae** (Henssen) D. Hawksw. Syn.: *Ticothecium zahlbrucknerella*
 ***buelliae** (C. W. Dodge) Matzer (Matzer et al. 1996) = *E. matzeri* for North American reports

ENDOHYALINA Marbach

ericina Giralt, van den Boom & Elix var. **ericina** (Giralt et al. 2010)
 ***insularis** (Arnold) Giralt, van den Boom & Elix Syn.: *Rinodina insularis* (Nadyeina et al. 2010)
rappii (Imshaug ex R. C. Harris) Marbach Syn.: *Buellia rappii* (Marbach 2000)
 circumpallida (H. Magn.) Marbach (Marbach 2000) = *Buellia circumpallida* (Giralt et al. 2010)

ENDOPYRENIUM Flotow

americanum B. de Lesd. = *Verrucaria americana*
 bajadanae B. de Lesd. = *Placidium acarosporoides*
 crustaceum B. de Lesd. = *Catapyrenium granulosum*
 granulosum B. de Lesd. = *Catapyrenium granulosum*
 novomexicanum B. de Lesd. = *Placidium acarosporoides*
 plumbeum B. de Lesd. = *Verrucaria inficiens*

rupicola B. de Lesd. = Verrucaria othmarii
tuckermanii (Rav. ex Mont.) Müll. Arg. = Placidium arboreum

ENTEROGRAPHA Fée

***bagliettoae** F. Seavey & J. Seavey (Seavey et al. 2017)
bradleyana F. Seavey & J. Seavey (Seavey & Seavey 2014b)
caudata F. Seavey & J. Seavey (Seavey & Seavey 2014b)
hutchinsiae (Leighton) A. Massal. (Sparrius 2004b)
johnsoniae F. Seavey & J. Seavey (Seavey et al. 2017)
keylargoensis F. Seavey & J. Seavey (Seavey et al. 2017)
murrayana F. Seavey & J. Seavey (Seavey & Seavey 2014b)
nitidula F. Seavey & J. Seavey (Seavey & Seavey 2014b)
oregonensis Sparrius & Björk (Sparrius & Björk 2008)
***osagensis** C. A. Morse (Morse 2013)
pallidella (Nyl.) Redinger (Seavey & Seavey 2012)
quassiicola Fée
subserialis (Nyl.) Redinger (Seavey & Seavey 2014a)
zonata (Körber) Källsten Syn.: Opegrapha zonata (Ertz et al. 2009)
anguinella (Nyl.) Redinger (Sparrius 2004b) = Opegrapha anguinella
carnea (Eckfeldt) R. C. Harris = Mazosia carnea
elegans (Eschw.) Tuck. = Sclerophyton elegans
lecanoroides R. C. Harris = Opegrapha anguinella

ENTEROSTIGMA Müll Arg.

montagnaei (Tuck) Fink (Fink 1935) = Cryptothecia striata (Thor 1991)

ENTOSTHELIA (Wallr.) Hue

saxicola B. de Lesd. = unknown Dermatocarpon sp.

EOPYRENULA R. C. Harris

intermedia Coppins Syn.: Pyrenula leucoplaca var. pluriloculata
parvispora R. C. Harris & Aptroot
leucoplaca (Wallr.) R. C. Harris = misidentification for North America (fide R. Harris)

EPAPHROCONIDIA Calatayud & V. Atienza

***hawksworthii** Calatayud & V. Atienza (Diederich 2003)

EPHEBE Fr.

americana Henssen
hispidula (Ach.) Horw. Syn.: Ephebeia hispidula
lanata (L.) Vainio
ocellata Henssen
perspinulosa Nyl.
solida Bornet
mamillosum (Lyngb.) E. Fr. (Fink 1935) Possibly Stigonema mamillosum, a cyanobacterium
pubescens (Ach.) Fr. = Pseudephebe pubescens

EPHEBEIA Nyl. = EPHEBE

hispidula (Ach.) Nyl. = Ephebe hispidula

EPICLADONIA D. Hawksw.

***sandstedei** (Zopf) D. Hawksw. (Scholz 1998)
***simplex** D. Hawksw. (Esslinger & Egan 1995)
***stenospora** (Harm) D. Hawksw. (Zhurbenko & Pino-Bodas 2017)

EPICOCCUM Link
***purpurascens** Schltdl. (Diederich 2003)

EPIGLOEA Zuka
intermedia Döbbeler (Lendemer & Harris 2004)
medioincrassata (Grumann) Döbbeler (Fryday 2004a)
pleiospora Döbbeler (Buck & Harris 2002)
renitens (Grumann) Döbbeler (Spribille et al. 2010)
soleiformis Döbbeler (Buck & Harris 2002)

EPILICHEN Clem.
#**glauconigellus** (Nyl.) Hafellner (Zhurbenko 2009a)
***scabrosus** (Ach.) Clem. Syn.: *Buellia scabrosa*
***stellatus** Triebel

EPITHAMNOLIA Zhurb. (Zhurbenko 2012)
***karatyginii** Zhurb.

ERINACELLUS T. Sprib., Muggia & Tønsberg (Spribille et al. 2014b)
dendroides (Henssen) T. Sprib., Muggia & Tønsberg Syn.: *Spilonema dendroides*

ERIODERMA Fée
mollissimum (Samp.) Du Rietz
pedicellatum (Hue) P. M. Jørg.
sorediatum D. J. Galloway & P. M. Jørg.
boreale Ahlner = *E. pedicellatum*

ERYTHRICIUM J. Erikss. & Hjortstam (Hawksworth & Helcini 2015)
***aurantiacum** (Lasch) D. Hawksw. & A. Henrici Syn.: *Marchandiobasidium aurantiacum*
(Hawksworth & Helcini 2015)

ESCHATOGONIA Trevisan
prolifera (Mont.) R. Sant. (Seavey et al. 2014)

ESSLINGERIANA Hale & M. J. Lai
idahoensis (Essl.) Hale & M. J. Lai Syn.: *Cetraria idahoensis*

ETAYOA Diederich & Ertz (Ertz et al. 2014)
***trypethelii** (Flakus & Kukwa) Diederich & Ertz

EUGENIELLA Lücking, Sérus. & Kalb (Lücking et al. 2011b)
leucocheila (Tuck.) Lücking, Sérus. & Kalb (Lücking et al. 2011b)

EUOPSIS Nyl.
granatina (Sommerf.) Nyl. Syn.: *Pyrenopsis granatina*, *Lecanora granatina*, *Pannaria granatina*
pulvinata (Schaerer) Nyl. Syn.: *Pyrenopsis pulvinata*

EVERNIA Ach.
divaricata (L.) Ach.
mesomorpha Nyl.
perfragilis Llano
prunastri (L.) Ach.
ceratea (Ach.) Zopf (Fink 1935) = *Pseudevernia furfuracea* (L.) Zopf, but a misidentification for North America
esorediosa (Müll. Arg.) Du Rietz = misidentification for North America (Bird 1974)
furfuracea (L.) W. Mann = *Pseudevernia consocians* and *P. intensa* for North American records

thamnodes (Flotow) Arnold = *E. mesomorpha*
vulpina (L.) Ach. = *Letharia vulpina*

EVERNIASTRUM Hale ex Sipman = HYPOTRACHYNA (Divakar et al. 2013)
catawbiense (Degel.) Hale ex Sipman = *Hypotrachyna catawbiensis*
sorocheilum (Vainio) Hale ex Sipman = *Hypotrachyna sorocheila*, but reports apparently based on *H. catawbiense*

EVERNICOLA D. Hawksw.
***flexispora** D. Hawksw.

FARNOLDIA Hertel
hypocrita (A. Massal.) Fröberg Syns.: *Lecidea hypocrita*, *L. lithospersa*, *L. ypocrita*
jurana (Schaerer) Hertel Syns.: *Lecidea jurana*, *L. albosuffusa*, *Tremolecia jurana*, *Melanolecia jurana*
micropsis (A. Massal.) Hertel Syns.: *Lecidea rhaetica*, *Melanolecia micropsis*, *Tremolecia nivalis*, *T. micropsis*

FAYODIA Kühner
***leucophylla** (Gillet) M. T. Lange = *Gamundia leucophylla* (Bigelow 1983)
***striatula** (Kühner) Singer = *Gamundia striatula* (Raitelhuber 1983)

FELIPES Frisch & G. Thor (Frisch et al. 2014)
leucopellaeus (Ach.) Frisch & G. Thor Syn.: *Arthonia leucopellaea*

FELLHANERA Vězda
aurantiaca (Vězda) Vězda Syn.: *Bacidia aurantiaca*
bouteillei (Desm.) Vězda Syn.: *Catillaria bouteillei*
crucitignorum C. A. Morse & Ladd (Morse & Ladd 2013)
eriniae R. C. Harris & Lendemer (Harris & Lendemer 2009)
fallax R. C. Harris & Lendemer (Harris & Lendemer 2009)
floridana (Tuck.) S. Ekman Syn.: *Bacidia floridana*, *Biatora floridana*, *Bilimbia floridana*
granulosa R. C. Harris & Lendemer (Harris & Lendemer 2009)
hybrida R. C. Harris & Lendemer (Harris & Lendemer 2009)
minnisinkorum R. C. Harris & Lendemer (Harris & Lendemer 2009)
montesfumosi R. C. Harris & Lendemer (Harris & Lendemer 2009)
rhapidophylli (Rehm)Vězda (Seavey & Seavey 2014a)
silicis R. C. Harris & Ladd (Harris & Lendemer 2009)
subtilis (Vězda) Diederich & Sérus. (Goward et al. 1996)

FELLHANEROPSIS Sérus. & Coppins
myrtillicola (Erichsen) Sérus. & Coppins (Lendemer & Knudsen 2011)
vezdae (Coppins & P. James) Sérus. & Coppins (Tønsberg 1997)

FIBRILLITHECIS A. Frisch (Frisch 2006)
confusa Lücking, Kalb & Rivas Plata (Rivas Plata et al. 2010)
halei (Tuck. & Mont.) Mangold Syns.: *Myriotrema halei*, *Thelotrema halei* (Lücking et al. 2016)
insignis (Zahlbr.) A. Frisch (Frisch 2006) = *F. confusa* (Rivas Plata et al. 2010)

FISSURINA Fée
aggregatula Common & Lücking (Lücking et al. 2011b)
albolabiata F. Seavey & J. Seavey (Seavey et al. 2017)
alligatorensis Lendemer & R. C. Harris (Lendemer & Harris 2014a)
americana Lendemer & R. C. Harris (Lendemer & Harris 2014a)
analphabetica Common & Lücking (Lücking et al. 2011b)
cingalina (Nyl.) Staiger (Lücking et al. 2011b)
columbina (Tuck.) Staiger Syns.: *Graphina columbina*, *G. virginalis*, *Graphis columbina*,

Phaeographina columbina (Staiger 2002)
confusa Common & Lücking (Lücking et al. 2011b)
crassilabra Mont. & Bosch (Lücking et al. 2011b)
cypressi (Müll. Arg.) Lendemer Syn.: *Graphina cypressi* (Lendemer 2007a)
dumastioides (Fink) Staiger Syn.: *Graphina dumastioides*, *Graphis dumastioides* (Staiger 2002)
egena (Nyl.) Nyl. (Lücking et al. 2011b)
humilis (Vainio) Staiger (Staiger & Kalb 2004)
illicicola Lendemer & R. C. Harris (Lendemer & Harris 2014a)
illiterata (R. C. Harris) Lendemer Syn.: *Graphis illiterata* (Lendemer & Knudsen 2008b)
incisura F. Seavey & J. Seavey (Seavey et al. 2017)
incrustans Fée Syn.: *Graphina incrustans*, *G. glaucoderma*, *Graphis incrustans* (Staiger 2002)
insidiosa C. Knight & Mitten Syn.: *Graphis beaumontii*, *G. insidiosa* (Staiger 2002)
inspersa Common & Lücking (Lücking et al. 2011b)
insculpta Mont. Syn.: *Graphina babingtonii* (Staiger 2002, Tripp et al. 2010)
leuconephela Nyl. Syn.: *Graphina leuconephela* (Staiger 2002, Tripp et al. 2010)
mexicana (Zahlbr.) Lücking & Rivas Plata (Lücking et al. 2011b)
nitidescens (Nyl.) Nyl. Syn.: *Graphina nitidescens*, *Graphis nitidescens* (Staiger 2002)
pseudostromatica Lücking & Rivas Plata (Lücking et al. 2011b)
radiata Mont. (Lücking et al. 2011b)
rufula (Mont.) Staiger Syn.: *Graphis rufula* (Staiger 2002)
scolecitis (Tuck.) Lendemer Syn.: *Graphina scolecitis*, *Graphis scolecitis* (Lendemer 2007a) North American records of *Graphina adscribens* belong here
subcomparimuralis Common & Lücking (Lumbsch et al. 2011; Lücking et al. 2011b)
subnitida (Nyl.) Zahlbr. (Staiger 2002, Tripp et al. 2010)
subnitidula (Nyl.) Staiger Syn.: *Graphina subnitidula*, *Graphis subnitidula* (Staiger 2002)
tachygrapha (Nyl.) Staiger (Lücking et al. 2011b)
tuckermaniana Common & Lücking (Lücking et al. 2011b)
varieseptata Common & Lücking (Lücking et al. 2011b)
subcontexta (Nyl.) Nyl. = *F. rufula* (Lücking et al. 2011b)

FISTULARIELLA Bowler & Rundel

almquistii (Vainio) Bowler & Rundel = *Ramalina almquistii*
dilacerata (Hoffm.) Bowler & Rundel = *Ramalina dilacerata*
geniculata (Hooker f. & Taylor) Bowler & Rundel = *Ramalina geniculata*
inflata (Hooker f. & Taylor) Bowler & Rundel = *Ramalina inflata*
minuscule (Nyl.) Bowler & Rundel = *Ramalina dilacerata*
roesleri (Hochst. ex Schaerer) Bowler & Rundel = *Ramalina roesleri*
scoparia (Vainio) Bowler & Rundel = *Ramalina scoparia*

FLAKEA O. E. Erikss. (Hansen 2003; Perlmutter 2006)

papillata O. E. Erikss. (Hansen 2003; Perlmutter 2006)

FLAVOCETRARIA Kärnefelt & A. Thell

cucullata (Bellardi) Kärnefelt & A. Thell Syn.: *Cetraria cucullata*, *Allocetraria cucullata*
minuscule (Elenkin & Savicz) Ahti, Poryadina & Zhurb. (Zhurbenko et al. 2005)
nivalis (L.) Kärnefelt & A. Thell Syn.: *Cetraria nivalis*, *Allocetraria nivalis*

FLAVOPARMELIA Hale

baltimorensis (Gyelnik & Föris) Hale Syn.: *Parmelia baltimorensis*, *Pseudoparmelia baltimorensis*
caperata (L.) Hale Syn.: *Parmelia caperata*, *P. cylisphora*, *P. flavicans*, *P. herreana*, *P. negativa*, *Pseudoparmelia caperata*
rutidota (Hooker f. & Taylor) Hale Syn.: *Parmelia rutidota*, *Pseudoparmelia rutidota*, and *P. conspersa* var. *subconspersa* and *Xanthoparmelia subconspersa* for North American records.
subcapitata (Nyl. ex Hasse) Hale ex DePriest & B. Hale (Knudsen et al. 2005) Syn.: *Parmelia subcapitata*
 [P*armelia concreta* Stizenb.] This name was apparently never effectively published; identified as an

uncertain species of Flavoparmelia by Hale & DePriest (1999), although an apparent ‘type’ specimen in FH was annotated by Mason Hale as an *Aspicilia* sp.

FLAVOPLACA Arup, Søchting & Frödén (Arup et al. 2013)

austrocitrina (Vondrák, Říha, Arup & Søchting) Arup, Søchting & Frödén Syn.: *Caloplaca austrocitrina*

citrina (Hoffm.) Arup, Frödén & Søchting Syn.: *Caloplaca citrina*

flavocitrina (Nyl.) Arup, Frödén & Søchting Syn.: *Caloplaca flavocitrina*

granulosa (Müll. Arg.) Arup, Frödén & Søchting Syn.: *Caloplaca granulosa*

marina (Wedd.) Arup, Frödén & Søchting Syn.: *Caloplaca marina*

microthallina (Wedd.) Arup, Frödén & Søchting Syn.: *Caloplaca microthallina*

FLAVOPUNCTELIA (Krog) Hale

darrowi (J. W. Thomson) Hale Syns.: *Parmelia darrowi*, *Punctelia darrowi*

flaventior (Stirton) Hale Syns.: *Parmelia flaventior*, *P. andreana*, *P. kernstockii*, *Punctelia flaventior*

praesignis (Nyl.) Hale Syns.: *Parmelia praesignis*, *P. incorrupta*, *P. caperata* var. *incorrupta*, *Punctelia praesignis*

soredica (Nyl.) Hale Syns.: *Parmelia soredica*, *P. ulophyllodes*, *P. manshurica*, *Punctelia soredica*

FORAMINELLA S. F. Meyer = **PARMELIOPSIS**

FORSSELLIA Zahlbr. = **PTERYGIOPSIS**

minnesotensis (Fink) Fink = *Lichinella minnesotensis*

neglecta Erichsen = *Pterygiopsis neglecta*

FOURAGEA Trevisan (Frisch et al. 2014)

filicina (Mont.) Trevisan Syn.: *Opegrapha filicina* (Frisch et al. 2014)

FRUTIDELLA Kalb (Kalb 1994)

caesioatra (Schaerer) Kalb (Kalb 1994) Syn.: *Lecidea caesioatra*, *L. arctica*

pullata (Norman) Schmull (Schmull et al. 2011) Syns.: *Biatora pullata*, *Lecidea pullata*

FULGENSIA A. Massal. & De Not. = **GYALOLECHIA** (Arup et al. 2013)

bracteata (Hoffm.) Räsänen subsp. *bracteata* = *Gyalolechia bracteata* subsp. *bracteata*

bracteata subsp. *bracteata* var. *alpina* (Th. Fr.) Poelt = *Gyalolechia bracteata* subsp. *bracteata* var. *alpina*

bracteata subsp. *deformis* Poelt (Esslinger & Egan 1995) = *Gyalolechia bracteata* subsp. *deformis*

desertorum (Tomin) Poelt = *Gyalolechia desertorum*

fulgens (Sw.) Elenkin = *Gyalolechia fulgens*

subbracteata (Nyl.) Poelt (Brodo et al. 2001, Kasalicky 2004) = *Gyalolechia subbracteata*

FULGIDEA Bendiksby & Timdal (Bendiksby & Timdal 2013)

oligospora (Timdal) Bendiksby & Timdal Syn.: *Hypocenomyce oligospora*

sierrae (Timdal) Bendiksby & Timdal Syn.: *Hypocenomyce sierrae*

FULVOPHYTON Ertz & Tehler

callicola (Sparrius) Tehler & Ertz Syn.: *Dirina callicola* (Tehler et al. 2013)

FUSARIUM Link

***peltigerae** Westend. (Spribille et al. 2010)

FUSCIDEA V. Wirth & Vězda

aleutica (Degel.) Fryday (Fryday 2008)

appalachensis Fryday (Fryday 2008)

arboricola Coppins & Tønsberg

gothoburgensis (H. Magn.) V. Wirth & Vězda (Fryday 2006)

intercincta (Nyl.) Poelt
lowensis (H. Magn.) R. A. Anderson & Hertel Syn.: *Lecidea lowensis*
mollis (Wahlenb.) V. Wirth & Vězda Syn.: *Lecidea mollis*
praeruptorum (Du Rietz & H. Magn.) V. Wirth & Vězda Syn.: *Lecidea praeruptorum*
pusilla Tønsberg
recensa (Stirton) Hertel, V. Wirth & Vězda Syn.: *Lecidea recensa*
recensa var **arcuatula** (Arnold) Fryday Syn. *Lecidea arcuatula*, *L. gyrodes* (Fryday 2008)
scrupulosa (Eckfeldt) Fryday (Fryday 2008) Syn.: *Biatora scrupulosa*, *Lecidea scrupulosa*, *L. kochiana* var. *subreagens*
texana Fryday (Fryday 2008)
thomsonii Brodo & V. Wirth (Brodo & Wirth 1998)
cyathoides (Ach.) V. Wirth & Vězda = misidentification for North America (Fryday 2008)
kochiana (Hepp) V. Wirth & Vězda = misidentification for North America (Fryday 2008)
lightfootii (Sm.) Coppins & P. James (Aptroot 1996) = misidentification for North America (Tønsberg 2002, Fryday 2008)
placidensis (H. Magn.) R. C. Harris = *Lecanora placidensis*
subfilamentosa (Zahlbr.) Brako = *Lecidea subfilamentosa* (Fryday 2008)
subreagens (H. Magn.) Oberholl. & V. Wirth = *Fuscidea scrupulosa* (Fryday 2008)

FUSCOPANNARIA P. M. Jørg.

ahlneri (P. M. Jørg.) P. M. Jørg. Syn.: *Pannaria ahlneri*
alaskana P. M. Jørg. & Tønsberg (Jørgensen 2000c)
aurita P. M. Jørg. (Jørgensen 2000c)
cheiroloba (Müll. Arg.) P. M. Jørg. (Jørgensen 2000c) Syn.: *Parmeliella cheiroloba*
confusa (P. M. Jørg.) P. M. Jørg. (Jørgensen 2000c)
convexa P. M. Jørg. (Jørgensen 2005)
coralloidea P. M. Jørg. (Jørgensen 2000c)
crustacea P. M. Jørg. (Jørgensen 2000c)
cyanolepra (Tuck.) P. M. Jørg. (Jørgensen 2000b) Syn.: *Pannaria cyanolepra*, *Parmeliella cyanolepra*
incisa (Müll. Arg.) P. M. Jørg. (Jørgensen 2000c)
laceratula (Hue) P. M. Jørg. Syn.: *Pannaria laceratula*
leprosa P. M. Jørg. & Tønsberg (Jørgensen 2000c)
leucosticta (Tuck.) P. M. Jørg. Syn.: *Pannaria leucosticta*
leucostictoides (Ohlsson) P. M. Jørg. Syn.: *Pannaria leucostictoides*
maritima (P. M. Jørg.) P. M. Jørg. Synonym: *Pannaria maritima*
mediterranea (Tav.) P. M. Jørg. Syn.: *Pannaria mediterranea*
pacifica P. M. Jørg. (Jørgensen 2000c)
praetermissa (Nyl.) P. M. Jørg. Syn.: *Pannaria praetermissa*, *Parmeliella praetermissa*, *P. lepidiota*
pulveracea (P. M. Jørg. & Henssen) P. M. Jørg. Syn.: *Pannaria pulveracea*
ramulina P. M. Jørg. & Tønsberg (Jørgensen 2000c)
sorediata P. M. Jørg. (Jørgensen 2000b)
thiersii P. M. Jørg. (Jørgensen 2000c)
viridescens P. M. Jørg. & Zhurb. (Jørgensen & Zhurbenko 2002)
californica (Tuck.) P. M. Jørg. (Jørgensen 2000c) = *Vahliella californica*
globigera Fryday & P. M. Jørg. (Fryday 2004a) = *Vahliella globigera*
hookerioides P. M. Jørg. (Jørgensen 2000c) = *Vahliella hookerioides*
labrata P. M. Jørg. (Jørgensen 2005) = *Vahliella labrata*
leucophaea (Vahl) P. M. Jørg. = *Vahliella leucophaea*
saubinetii (Mont.) P. M. Jørg. = *Vahliella saubinetii*

GABURA Adanson

fasciculare (L.) P. M. Jørg. (Jørgensen 2014) Syn.: *Collema fasciculare*, *Synechoblastus aggregatus*, *S. fascicularis*

GAMUNDIA Raithelh.

***leucophylla** (Gillet) H. E. Bigelow Syn.: *Fayodia leucophylla* (Bigelow 1983)

***striatula** (Kühner) Raitelh. Syn.: *Fayodia striatula* (Raitelhuber 1983)

GASPARRINIA Tornab. = CALOPLACA

GASSICURTIA Fée

catasema (Tuck.) Marbach Syn.: *Buellia catasema*, *B. caloosensis* (Marbach 2000)

coccinea Fée Syn.: *Buellia coccinea* (Marbach 2000)

subpulcella (Vainio) Marbach Syn.: *Buellia subpulcella*, *B. pachnidisca* (Marbach 2000)

elizae (Tuck.) Marbach (Marbach 2000) = *Buellia elizae* (Lendemer et al. 2013)

vernica (Tuck.) Marbach = *Buellia vernica* (Lendemer et al. 2013)

GEISLERIA Nitschke (Aptroot et al. 2014)

sychnogonioides Nitschke Syn.: *Strigula sychnogonioides*

GELATINOPSIS Rambold & Triebel

#**geoglossi** (Ellis & Everh.) Rambold & Triebel (Diederich et al. 2010)

***acarosporicola** Kocourk. & K. Knudsen (Kocourková & Knudsen 2009a) = *Llimoniella acarosporicola*

GELTINGIA Alstrup & D. Hawksw.

***associata** (Th. Fr.) Alstrup & D. Hawksw. Syn.: *Lecidea associata*

GLAUCOMARIA M. Choisy

rupicola (L.) M. Choisy = *Lecanora rupicola*

sordida (Pers.) Th. Fr. = *Lecanora rupicola*

GLAUCOTREMA Rivas Plata & Lumbsch (Rivas Plata et al. 2012)

glaucophaenum (Kremp.) Rivas Plata & Lumbsch Syns.: *Myriotrema glaucophaenum*, *Ocellularia glaucophaena* Presence in N.A. is doubtful

GLOBOSPHAERIA D. Hawksw.

***jamesii** D. Hawksw. (Diederich 2003)

GLOEOHEPPIA Gyelnik

polyspora Henssen (Schultz 2002c)

rugosa Henssen (Knudsen et al. 2017)

squamulosa (Zahlbr.) M. Schultz Syn. : *Psorotichia squamulosa* (Schultz 2007b)

GLYPHIS Ach.

atrofusca (Müll. Arg.) Lücking (Lücking et al. 2011b)

cicatricosa Ach.

scyphulifera (Ach.) Staiger Syn.: *Gyrostomum scyphuliferum* (Staiger 2002, Lücking et al. 2011b)

substriatula (Nyl.) Staiger Syn.: *Graphina substriatula* (Staiger 2002, Tripp et al. 2010)

achariana Tuck. = *G. cicatricosa*

confluens Zenker = *G. cicatricosa*

favulosa Ach. = *G. cicatricosa*

GLYPHOLECIA Nyl.

scabra (Pers.) Müll. Arg. Syns.: *Acarospora rhagadiosa*, *A. scabra*, *A. saxicola*

GOMPHILLUS Nyl.

americanus Essl.

calycioides (Duby) Nyl. (Buck 1998)

GONGYLIA Körber

muscorum Zschacke (North American only) = Protothelenella pluriseptata (Fryday 2004b)
nadvornikii Servít = Segestria mammillosa, but a misidentification for North America (Fryday 2004b)

GONOHYMENIA J. Steiner = LICHINELLA

cribellifera (Nyl.) Henssen = Lichinella cribellifera
melamphylla (Tuck.) Henssen = Lichinella melamphylla
minnesotensis (Fink) Henssen = Lichinella minnesotensis
nigritella (Lettau) Henssen = Lichinella nigritella

GOWARDIA P. Halonen, L. Myllys, S. Velmala, & H. Hyvärinen (Halonen et al. 2009, Myllys et al. 2014)

arctica P. Halonen, L. Myllys, S. Velmala, & H. Hyvärinen Syn.: Alecatoria gowardii
nigricans (Ach.) P. Halonen, L. Myllys, S. Velmala, & H. Hyvärinen Syn.: Alecatoria nigricans

GRANULOPYRENIS Aptroot

hymnothora (Ach.) Aptroot Syn.: Verrucaria hymnothora, Microthelia hymnothora, Sphaeria bignoniae

GRAPHINA Müll. Arg. = GRAPHIS (Lücking et al. 2007; Tripp et al. 2010)

abaphoides (Nyl.) Müll. Arg. = Acanthothecis leucopepla
acharii (Fée) Müll. Arg. = Graphis acharii
acrophaea Müll. Arg. = Graphis parilis
adscribens (Nyl.) Müll. Arg. = Fissurina scolecitis for North American records
anguina (Mont.) Müll. Arg. = Thalloloma anguinum
antillarum (Vainio) Zahlbr. = Graphis antillarum
babingtonii (Mont.) Zahlbr. = Fissurina insculpta
colliculosa (Mont.) Hale = Platythecium colliculosum
columbina (Tuck.) M. Wirth & Hale = Fissurina columbina
cypressi Müll. Arg. = Fissurina cypressi
dimidiata (Vainio) Zahlbr. = misidentification for North America
dumastioides (Fink) ined. = Fissurina dumastioides
floridana (Tuck.) R. C. Harris = Platythecium floridanum
glaucoderma (Nyl.) Müll. Arg. = Fissurina incrustans
incrustans (Fée) Müll. Arg. = Fissurina incrustans
intertexta (Müll. Arg.) R. C. Harris = Acanthothecis aurantiaca
leprocarpa (Nyl.) Zahlbr. = Chapsa leprocarpa
marcescens (Fée) Müll. Arg. = Carbacanthographis marcescens
mendax (Nyl.) Müll. Arg. = misidentification for North America
nitidescens (Nyl.) Riddle = Fissurina nitidescens
leuconephela (Nyl.) Zahlbr. = Fissurina leuconephela
parilis (Kremp.) Müll. Arg. = Graphis parilis
peplophora M. Wirth & Hale = Acanthothecis peplophora
platycarpa (Eschw.) Zahlbr. = misidentification for North America
platyleuca (Nyl.) Zahlbr. (Harris 1995a) = Diorygma pruinosum
plittii Zahlbr. = Carbacanthographis marcescens
scolecitis (Tuck.) Fink = Fissurina scolecitis
sophisticascens (Nyl.) Zahlbr. = Graphis sophisticascens
subnitida (Nyl.) Zahlbr. = Fissurina subnitida
subnitidula (Nyl.) Zahlbr. = Fissurina subnitidula
substriatula (Nyl.) Zahlbr. = Glyphis substriatula
subvirginalis (Nyl.) Müll. Arg. = Acanthothecis mosquitensis
virginalis (Nyl.) Müll. Arg. = Fissurina columbina
virginea (Eschw.) Müll. Arg. = Diorygma poitaei
xylophaga R. C. Harris = Graphis xylophage

GRAPHIS Adanson

acharii Fée Syn. *Graphina acharii* Presence in N. Am. uncertain (Tripp et al. 2010)
analoga Nyl. (Seavey & Seavey 2011)
anfractuosa Eschw.
antillarum Vainio Syn.: *Graphina antillarum*
aperiens Müll. Arg.
appendiculata Common & Lücking (Lücking et al. 2011b)
argentata Lücking & Umaña (Lücking et al. 2011b)
assimilis Nyl. (Lücking et al. 2011b)
botryosa Tuck.
brittoniae F. Seavey & J. Seavey (Seavey & Seavey 2011)
bungartzii Barcenas-Peña, Lücking, Herrera-Campos & R. Miranda (Seavey et al. 2017)
caesiella Vainio
caesiocarpa Redinger (Lücking et al. 2011b)
caribica Lücking (Lücking et al. 2011b)
chlorotica A. Massal. (Seavey & Seavey 2011)
chromothecia R. C. Harris
cincta (Pers.) Aptroot (Seavey & Seavey 2011)
conferta Zenker (Lücking et al. 2011b)
crebra Vainio (Seavey & Seavey 2011)
cupei Vainio ex Lücking (Lücking et al. 2011b)
dendrogramma Nyl. (Seavey & Seavey 2011)
desquamescens (Fée) Zahlbr.
disserpens Nyl. (Lücking et al. 2011b)
elegans (Borrer ex Sm.) Ach.
elevata F. Seavey & J. Seavey (Seavey & Seavey 2011)
elongata Zenker (Seavey et al. 2017)
endoxantha Nyl. (Lücking 2009)
eulectra Tuck. Syn.: *Phaeographis eulectra*
ferrugineodisca F. Seavey & J. Seavey (Seavey et al. 2017)
filiformis Adaw. & Makhija (Seavey & Seavey 2011)
furcata Fée (Seavey & Seavey 2011)
glaucescens Fée
haleana R. C. Harris
handelii Zahlbr. (Lücking et al. 2011b)
hinnulea F. Seavey & J. Seavey (Seavey & Seavey 2011)
hodgesiana Lendemer (Lendemer 2010b)
hyphosa Staiger (Lendemer 2010b)
intermedians Vainio (Lendemer 2010b)
intricata Fée
inversa R. C. Harris
koltermaniae F. Seavey & J. Seavey (Seavey et al. 2017)
leptocarpa Fée
leptoclada Müll. Arg
librata C. Knight
lineola Ach.
longula Kremp. (Lücking et al. 2011b)
lucifica R. C. Harris
lumbricina Vainio
modesta Zahlbr. (Seavey & Seavey 2011)
neolongata Lücking (Seavey & Seavey 2011)
oshioi M. Nakan. (Lücking et al. 2011b)
oxyclada Müll. Arg. (Lücking et al. 2011b)
paralleloides M. Cáceres & Lücking (Seavey et al. 2014)
parilis Kremp. Syn.: *Graphina parilis* (Lücking et al. 2008)
pavoniana Fée North American reports uncertain (Lendemer 2010b)
pergracilis (Zahlbr.) Lücking & A. W. Archer (Lücking & McCune 2012)

perstriatula Nyl. (Seavey et al. 2017)
pinicola Zahlbr. (Lendemer 2010b)
platycarpella Müll. Arg.
proserpens Vainio (Tucker 1981)
pseudocinerea Lücking (Lücking et al. 2011b)
pseudoserpens Chaves, Lücking & Umaña (Seavey et al. 2017)
pyrrhocheiloides Zahlbr. (Seavey et al. 2014)
renschiana (Müll. Arg.) Stizenb. (Seavey & Seavey 2011)
rimulosa (Mont.) Trevisan
sauroidea Leighton (Lücking et al. 2011b)
saxorum Egea & Torrente (Egea & Torrente 1997)
schiffneri Zahlbr. (Seavey et al. 2014)
scripta (L.) Ach.
sophisticascens (Nyl.) Zahlbr. (Harris & Ladd 2005; Tripp et al. 2010)
stellata M. Cáceres & Lücking (Lücking et al. 2011b)
sterlingiana E. Tripp & Lendemer (Lendemer et al. 2013)
striatula (Ach.) Sprengel
subamylacea Zahlbr.
subflexibilis Lücking & Chaves (Lücking et al. 2011b)
supracola A. W. Archer (Seavey & Seavey 2011)
tamiamiensis Lendemer (Lendemer 2010b)
tenella Ach.
xanthospora Müll. Arg. (Lücking et al. 2011b)
xylophaga (R. C. Harris) Lendemer Syn.: Graphina xylophaga (Lendemer & Knudsen 2008b)
 afzelii Ach. = Dyplolabia afzelii
 amicta Nyl. (1935) = Carbacanthographis amicta (Nyl.) Staiger & Kalb (Staiger 2002) Probable misidentification for North America (Esslinger & Tucker 2009)
 anguilliformis Taylor (Fink 1935) Identity uncertain; probable misidentification for North America (Esslinger & Tucker 2009)
 atrorubens Tuck. ex Fink = Dimidiographa longissima
 balbisina Nyl. (Fink 1935) = G. implicata Fée Probable misidentification for North America (Esslinger & Tucker 2009)
 beaumontii Tuck. = Fissurina insidiosa
 candidata Nyl. = Carbacanthographis candidata
 celtidis Müll. Arg. = G. librata
 cinerea Fée (Fink 1935) Probable misidentification for North America (Esslinger & Tucker 2009)
 dendritica (Ach.) Ach. (Mohr 1901) = Phaeographis dendritica
 diversa Nyl. (Fink 1935) = Leiorreuma exaltata (Zahlbruckner 1924, Staiger 2002)
 dumastii (Fée) Sprengel (Fink 1935) = Fissurina dumastii Fée Probable misidentification for North America (Esslinger & Tucker 2009)
 dumastioides Fink = Fissurina dumastioides
 floridana Tuck. = Platythecium floridanum
 grammatis Fée = Platythecium grammatis
 illiterata R. C. Harris = Fissurina illiterata
 incrustans = Fissurina incrustans
 insidiosa (C. Knight & Mitten) Hooker f. = Fissurina insidiosa
 intertexta Müll. Arg. = Acanthothecis aurantiaca
 inustula Stirton (Stirton 1875) = Thalloloma anguinum
 lactea (Fée) Sprengel (Fink 1935) Identity uncertain (Esslinger & Tucker 2009)
 leucopepla Tuck. = Acanthothecis leucopepla
 marcescens = Carbacanthographis marcescens
 mosquitensis Tuck. = Acanthothecis mosquitensis
 nitida (Eschw.) Tuck. = Medusulina nitida
 nitidescens Nyl. = Fissurina nitidescens
 poitaeoides Nyl. = Acanthothecis poitaeoides
 radiata (Mont.) Nyl. (Fink 1935) Identity uncertain (Esslinger & Tucker 2009)

rigidula Müll. Arg. (Lendemer & Yahr 2004) = *G. leptoclada* (Lücking 2009)
 ramificans Nyl. (Fink 1935) Identity uncertain (Esslinger & Tucker 2009)
 rufula Mont. = *Fissurina rufula*
 scalpturata Ach. (Mohr 1901) = *Phaeographis scalpturata*
 scolecitis Tuck. = *Fissurina scolecitis*
 scripta var. varia Ach. (Fink 1935) = *G. scripta*
 subdiversa Nyl. (Fink 1935) a nomen nudum; identity uncertain
 subelegans Nyl. = *G. endoxantha* (Lücking 2009)
 subnitidula Nyl. = *Fissurina subnitidula*
 subparilis Nyl. = *Fissurina rufula*
 turbulenta Nyl. = *Anomomorpha turbulenta*

GRAPHIUM Corda

***aphthosae** Alstrup & D. Hawksw. (Esslinger & Egan 1995)

GYALECTA Ach.

erythrozona Lettau
carneola (Ach.) Hellbom Syns. *Pachyphiale carneola* (Baloch et al. 2013a)
fagicola (Hepp ex Arnold) Kremp. Syns.: *Pachyphiale fagicola* (Baloch et al. 2013a)
flotowii Körber
foveolaris (Ach.) Schaerer
friesii Flotow ex Körber
geoica (Wahlenb. ex Ach.) Ach. Syn.: *Secoliga geoica*
gyalizella (Nyl.) Baloch & Lücking Syn.: *Pachyphiale gyalizella* (Baloch et al. 2013a)
herrei Vězda
 ***hypoleuca** (Ach.) Zahlbr. (McMullin et al. 2017)
jenensis (Batsch) Zahlbr.
kukriensis (Räsänen) Räsänen
obesipora R. C. Harris & Lendemer (Lendemer et al. 2013a)
peziza (Mont.) Anzi
russula (Körber ex Nyl.) Baloch, Lumbsch & Wedin Syns.: *Belonia fennica*, *B. russula* (Baloch et al. 2013a)
truncigena (Ach.) Hepp
carneolutea (Turner) H. Olivier = *Cryptolechia carneolutea*
cupularis (Hedwig) Schaerer = *G. jenensis*
farlowii Tuck. ex Nyl. = *Petractis farlowii*
lamprospora Nyl. = *Bactrospora lamprospora*
lutea (Dickson) Tuck. = *Coenogonium luteum*
odora Ach. (Fink 1935) = *Ionaspis odora*
radiatilis Tuck. = *Skyttea radiatilis*

GYALECTARIA Schmitt, Kalb & Lumbsch (Schmitt et al. 2010)

diluta (Björk, G. Thor & T. B. Wheeler) Schmitt, T. Sprib. & Lumbsch (Schmitt et al. 2010)

GYALECTIDIUM Müll. Arg.

appendiculatum Lücking, Lendemer & E. Tripp (Lücking et al. 2007, Lendemer & Tripp 2008)
catenulatum (Cavalc. & A. A. Silva) L. I. Ferraro, Lücking & Sérus. (Lücking et al. 2007)
filicinum Müll. Arg.
floridense Safranek & Lücking (Safranek & Lücking 2005)
imperfectum Vězda (Ferraro, Lücking & Sérusiaux 2001)
paolae Herrera-Campos & Lücking (Sanders & de los Ríos 2015)
tuckerae Lücking & Lendemer (Lücking et al. 2007)
ulloae Herrera-Campos & Lücking (Lücking et al. 2011b)
viride Lücking, W. R. Buck & Rivas Plata (Lücking et al. 2007)
yahriae W. R. Buck & Sérus. (Buck & Sérusiaux 2000)
rotuliforme Müll. Arg. = *Asterothyrium rotuliforme*

GYALECTINA Vězda = **CRYPTOLECHIA**
carneolutea (Turner) Vězda = *Cryptolechia carneolutea*

GYALIDEA Lettau ex Vězda

asteriscus (Anzi) Aptroot & Lücking (Aptroot & Lücking 2003) Syn.: *Solorinella asteriscus*
fritzei (Stein) Vězda (Hutten et al. 2013)
hyalinescens (Nyl.) Vězda
lecideopsis (A. Massal.) Lettau ex Vězda
lecideopsis var. **eucarpa** (Servít) Vězda
lecideopsis var. **kurdistanica** (J. Steiner) Vězda
roseola (Arnold) Lettau (Brodo 1995)
dodgei Vězda = *G. hyalinescens*
lecideopsis var. *convarians* (Nyl.) Vězda = *G. lecideopsis* var. *eucarpa*

GYALIDEOPSIS Vězda

africana Kalb & Vězda (Lücking et al. 2007)
americana Lücking & W. R. Buck (Lücking et al. 2007)
bartramiorum Lendemer (Lendemer 2017)
berenice (Ellis & Everh.) Lücking & W. R. Buck
buckii Lücking, Sérus. & Vězda (Lücking et al. 2007) Syn.: *Tricharia vezdae*
epicorticis (A. Funk) Tønsberg & Vězda (Lücking et al. 2007) Syn.: *Microlychnus epicorticis*
floridae Etayo & Diederich (Etayo & Diederich 2001)
helvetica van den Boom & Vězda (Spribille & Björk 2008)
lambinonii Vězda (Lücking et al. 2007)
macarthurii Lücking, Umaña & Aptroot (Lücking et al. 2007)
mexicana Tretiach, Giralt & Vězda (Lendemer 2011a, Lendemer & Tripp 2014)
moodyae Lendemer & Lücking (Lendemer & Lücking 2004)
ozarkensis Lücking, W. R. Buck & R. C. Harris (Lücking et al. 2007)
piceicola (Nyl.) Vězda & Poelt
pusilla Lücking & Tønsberg (Lücking & Tønsberg 2016)
sessile W. B. Sanders & Lücking (Sanders & Lücking 2015)
subaequatoriana Lücking & W. R. Buck (Lücking et al. 2007)
submonospora Lücking & W. R. Buck (Lücking et al. 2007)
vainioi Kalb & Vězda var. **semicirculata** Lücking & W. R. Buck (Lücking et al. 2007)
vainioi Kalb & Vězda var. **vainioi**
wesselsii Lücking, Sipman & Chaves (Lücking et al. 2007)
alnicola W. Noble & Vězda = *G. piceicola*
anastomosans P. James & Vězda = *Jamesiella anastomosans*
athalloides (Nyl.) Vězda = *Diploschistella athalloides*
musciicola P. James & Vězda (Tønsberg 1997) = misidentification of *G. moodyae* (Lücking et al. 2007)

GYALOLECHIA A. Massal. (Arup et al. 2013)

bracteata (Hoffm.) A. Massal. subsp. **bracteata** Syn.: *Caloplaca bracteata*, *Fulgensia bracteata*
bracteata subsp. **bracteata** var. **alpina** (Th. Fr.) ined. Syn.: *Fulgensia bracteata* subsp. *bracteata* var. *alpina*
bracteata subsp. **deformis** (Poelt) ined. Syn.: *Fulgensia bracteata* subsp. *deformis*
desertorum (Tomin) Søchting, Frödén & Arup Syn.: *Fulgensia desertorum*
epiphyta (Lyngé) Vondrák Syn.: *Caloplaca arizonica*, *C. epiphyta* (Vondrák et al. 2016)
flavorubescens (Hudson) Søchting, Frödén & Arup Syn.: *Caloplaca aurantiaca*, *C. flavorubescens*
flavovirescens (Wulfen) Søchting, Frödén & Arup Syn.: *Caloplaca erythrella*, *C. flavovirescens*
fulgens (Sw.) Søchting, Frödén & Arup Syn.: *Caloplaca fulgens*, *Fulgensia fulgens*, *Placodium fulgens*
persimilis (Wetmore) Søchting, Frödén & Arup Syn.: *Caloplaca persimilis*
stantonii (W. A. Weber ex Arup) Søchting, Frödén & Arup Syn.: *Caloplaca stantonii*
stipitata (Wetmore) Søchting, Frödén & Arup Syn.: *Caloplaca stipitata*
subbracteata (Nyl.) Søchting, Frödén & Arup Syn.: *Fulgensia subbracteata*

xanthostigmoidea (Räsänen) Söchting, Frödén & Arup Syns.: *C. discolor*, *C. xanthostigmoidea arizonica* (H. Magn.) Söchting, Frödén & Arup = *G. epiphyta* (Vondrák et al. 2016)

GYMNODERMA Nyl.

lineare (A. Evans) Yoshim. & Sharp = *Cetradonia linearis*

GYPSOPLACA Timdal

macrophylla (Zahlbr.) Timdal

GYROGRAPHA Ertz & Tehler (Ertz et al. 2015b)

gyrocarpa (Flotow) Ertz & Tehler Syn.: *Opegrapha gyrocarpa* (Ertz et al. 2015b)

GYROPHORA Ach. = **UMBILICARIA**

angulata (Tuck.) Herre = *Umbilicaria angulata*

anthracina (Wulfen) Körber = *Umbilicaria rigida*

arctica Ach. = *Umbilicaria arctica*

cylindrica (L.) Ach. = *Umbilicaria cylindrica*

decussata (Vill.) Zahlbr. = *Umbilicaria decussata*

deusta (L.) Ach. = *Umbilicaria deusta*

dillenii (Tuck.) Müll. Arg. = *Umbilicaria mammulata*

erosa (G. Weber) Ach. = *Umbilicaria torrefacta*

flocculosa (Wulfen) Turner & Borrer = *Umbilicaria deusta*

grisea Swartz (Fink 1935) = *Umbilicaria grisea* Hoffm. = misidentification for North America (Esslinger & Tucker 2009)

hyperborea Ach. = *Umbilicaria hyperborea* var. *hyperborea*

muhlenbergii Ach. = *Umbilicaria muhlenbergii*

phaea (Tuck.) Nyl. = *Umbilicaria phaea*

polyphylla (L.) Funck = *Umbilicaria polyphylla*

polyrrhiza (L.) Körber = *Umbilicaria polyrrhiza*

proboscidea (L.) Ach. (Fink 1935) = *Umbilicaria proboscidea*

rugifera (Nyl.) Th. Fr. (Fink 1935) = *Umbilicaria virginis* (Llano 1950)

torrefacta (Lightf.) Cromb. (Fink 1935) = *Umbilicaria torrefacta*

vellea (L.) Ach. = *Umbilicaria vellea*

GYROSTOMUM Fr.

curtisii Tuck. (Fink 1935) = *Baculifera curtisii*

scyphuliferum (Ach.) Nyl. = *Glyphis scyphuliferum*

HAEMATOMMA A. Massal.

accolens (Stirton) Hillm. (Staiger & Kalb 1995)

americanum Kalb & Staiger (Staiger & Kalb 1995)

fenzlianum A. Massal. (Staiger & Kalb 1995)

flexuosum Hillm. (Staiger & Kalb 1995)

guyanense Kalb & Staiger (Brodo et al. 2008)

leprarioides (Vainio) Vainio (Brodo et al. 2008)

ochroleucum (Necker) J. R. Laundon var. **ochroleucum**

ochroleucum (Necker) J. R. Laundon var. **porphyrium** (Pers.) J. R. Laundon Syn.: *H. porphyrium*

persoonii (Fée) A. Massal. (Staiger & Kalb 1995)

rufidulum (Fée) A. Massal. (Staiger & Kalb 1995)

caesium Coppins & P. James = *Mycoblastus caesius*

californicum Sigal & D. Toren = *Ophioparma rubricosa* (Ekman 1996)

cismonicum Beltr. = *Loxospora cismonica*

coccineum (Dickson) Körber = misidentification for North America

elatinum (Ach.) A. Massal. = *Loxospora elatina*

lapponicum Räsänen = *Ophioparma lapponica*

ochrophaeum (Tuck.) A. Massal. = *Loxospora ochrophaea*

pacificum Hasse = Ophioparma rubricosa (Staiger & Kalb 1995, Ekman 1996)
porphyrium (Pers.) Zopf = H. ochroleucum var. porphyrium
puniceum (Sw.) A. Massal. North American records are H. persoonii
pustulatum Brodo & W. L. Culb. = *Lepra pustulata*
rappii Zahlbr. = Schismatomma rappii
subpuniceum (Fée) B. de Lesd. = H. fenizianum
ventosum (L.) A. Massal. = Ophioparma ventosa

HAFELLIA Kalb, H. Mayrhofer & Scheid. = Buellia (Nordin & Tibell 2005)
arnoldii (Servit) Hafellner & Türk = Buellia arnoldii
bahiana (Malme) Sheard = Buellia bahiana
bahiana var. pleiotropa (Malme) Sheard = Buellia bahiana var. pleiotropa
callispora (C. Knight) H. Mayrhofer & Sheard = Buellia callispora
curatellae (Malme) Marbach (Marbach 2000) = Buellia curatellae
disciformis (Fr.) Marbach & H. Mayrhofer = Buellia disciformis
fosteri Imshaug & Sheard = a species of Buellia
parastata (Nyl.) Kalb = Buellia parastata
pleiotera (Malme) Marbach (Hansen et al. 2008) = Buellia pleiotera

HAFELLNERA Houmeau & Cl. Roux
parasemella (Nyl.) Houmeau & Cl. Roux = Schaereria parasemella

HALECANIA M. Mayrhofer
alpivaga (Th. Fr.) M. Mayrhofer Syn.: Lecania alpivaga, L. disceptans, L. thallophila, Lecanora disceptans
australis Lumbsch (van den Boom & Ryan 2004a)
pepegospora (H. Magn.) van den Boom (van den Boom & Elix 2005) Syn.: Lecania pepegospora
viridescens Coppins & P. James

HALEGRAPHA Rivas Plata & Lücking (Lücking et al. 2011a, 2011b)
floridana Common & Lücking

HALOSPORA (Zschacke) Tomas. & Cif.
***discrepans** (J. Lahm ex Arnold) Hafellner (Dillman et al. 2012)

HARPIDIUM Körber
nashii Scheid. (Schultz et al. 2000)
glaucophanum (Hasse) Hasse = Rhizoplaca glaucophana

HASSEA Zahlbr.
***bacillosa** (Nyl.) Zahlbr. = Sarcopyrenia bacillosa

HAZSLINSZKYA Körber (Ertz & Diederich 2015)
gibberulosa (Ach.) Körber Misidentifications for North America (Perlmutter et al. 2015)

HAWKSWORTHIANA U. Braun
***peltigericola** (D. Hawks.) U. Braun

HEIOMASIA Nelsen, Lücking & Rivas Plata (Nelsen & Lücking 2010 [2011])
seaveyorum Nelsen & Lücking

HELMINTHOCARPON Fée
leprevostii Fée

HELOCARPON Th. Fr.

crassipes Th. Fr. Syns.: *Lecidea crassipes*, *Micarea crassipes*
lesdainii (Zahlbr.) Breuss (Breuss 2001)
corticola Breuss (Etayo 1998) = *H. lesdainii*

HENRICA B. de Lesd.

americana Breuss (Breuss 2002c)
melaspora (Taylor) Savić & Tibell Syn.: *Polyblastia melaspora* (Savić & Tibell 2008)
theleodes (Sommerf.) Savić, Tibell & Nav.-Ros. Syn.: *Polyblastia theleodes* (Savić & Tibell 2008)

HEPPIA Nägeli

adglutinata (Kremp.) A. Massal.
conchiloba Zahlbr.
despreauxii (Mont.) Tuck. (Büdel et al. 2002) Syns.: *Anema dodgei*, *Solorinaria despreauxii* (Schultz 2007b)
lutosa (Ach.) Nyl.
alumenensis Herre Excluded from North American flora; type not found.
bolanderi (Tuck.) Vainio = *Peltula bolanderi*
deserticola Zahlbr. = *Peltula obscurans* var. *deserticola*
euploca (Ach.) Vainio = *Peltula euploca*
guepinii (Delise) Nyl. = *Peltula euploca*
hassei Zahlbr. = *Peltula obscurans* var. *hassei*
leptopholis Nyl. ex Hasse = *Peltula patellata*
macrospora B. de Lesd. = *H. conchiloba*
placodizans Zahlbr. = *Peltula placodizans*.
planescens Nyl. Excluded from North American flora; type not found.
polyphylla B. de Lesd. = *Peltula euploca*
polyspora Tuck. = *Peltula patellata*
psammophila Nyl. = misidentification for North America
richardsii Herre = *Peltula richardsii*
terrena Nyl. ex Hasse = *Peltula patellata*
tortuosa (Nees) Vainio = *Peltula tortuosa*
virescens (Despr.) Nyl. = *H. lutosa*
zahlbruckneri Hasse = *Peltula zahlbruckneri*

HERPOTHALLON Tobler (Aptroot et al. 2009)

echinatum Aptroot, Lücking & Will-Wolf (Lücking et al. 2011b)
hyposticticum F. Seavey & J. Seavey (Seavey & Seavey 2014a)
rubrocinctum (Ehrenb.: Fr.) Aptroot, Lücking & G. Thor Syns. *Cryptothecia rubrocincta*, *C. sanguineum*
rubroechinatum Frisch & G. Thor (Frisch et al. 2010)
antillarum (Vainio) Aptroot, Lücking & G. Thor (Lücking et al. 2011b) = *Diorygma antillarum*

HERTELIANA P. James

alaskensis (Nyl.) S. Ekman Syns.: *Bacidia alaskensis*, *Lecidea alaskensis* (Ekman 1996)
schuyleriana Lendemer (Lendemer 2016c)

HERTELIDEA Printzen & Kantvilas (Printzen & Kantvilas 2004)

botryosa (Fr.) Printzen & Kantvilas Syns.: *Biatora botryosa*, *Lecidea botryosa* (Printzen & Kantvilas 2004)
pseudobotryosa R. C. Harris, Ladd & Printzen (Printzen & Kantvilas 2004)

HETEROCARPON Müll. Arg.

***ochroleucum** (Tuck.) Müll. Arg. Syn.: *Endocarpon ochroleucum*

HETEROCEPHALACRIA Berthier

bachmannii (Diederich & M. S. Christ.) Millanes & Wedin (McMullin et al. 2017, Zhurbenko & Pino-Bodas 2017)

HETEROCYPHELIUM Vainio

leucampyx (Tuck.) Vainio

HETERODERMIA Trevisan

albicans (Pers.) Swinscow & Krog Syns.: *Anaptychia domingensis*, *A. ravenelii*
appalachensis (Kurok.) W. L. Culb. Syn.: *Anaptychia appalachensis*
boryi (Fée) K. P. Singh & S. R. Singh Syns.: *Anaptychia boryi*, *A. neoleucomelaena*
casarettiana (A. Massal.) Trevisan Syn.: *Anaptychia casarettiana*
chondroidea W. A. Weber & D. D. Awasthi Syn.: *Anaptychia chondroidea*
comosa (Eschw.) Follm. & Redón (Harris 1995b) Syn.: *Physcia comosa*
crocea R. C. Harris North American reports of *H. corallophora* belong here
dendritica (Pers.) Poelt Syn.: *Anaptychia dendritica*
diademata (Taylor) D. D. Awasthi Syn.: *Anaptychia diademata*
echinata (Taylor) W. L. Culb. Syn.: *Anaptychia echinata*
erecta Lendemer (Lendemer 2009a)
erinacea (Ach.) W. A. Weber Syn.: *Anaptychia erinacea*
galactophylla (Tuck.) W. L. Culb. Syns.: *Anaptychia comosa* (for North American records), *A. galactophylla*
granulifera (Ach.) W. L. Culb. Syn.: *Anaptychia granulifera*
hypoleuca (Muhl.) Trevisan Syn.: *Anaptychia hypoleuca*
japonica (M. Satô) Swinscow & Krog
leucomela (L.) Poelt Syn.: *Anaptychia "leucomelaena"*
microphylla (Kurok.) Skorepa Questionable for N. America (Lendemer 2009a)
namaquana Brusse (Esslinger & Bratt 1998)
neglecta Lendemer, R. C. Harris & E. Tripp (Lendemer et al. 2007)
obscurata (Nyl.) Trevisan Syns.: *Anaptychia heterochroa*, *A. hypoleuca* var. *colorata*, *A. obscurata*, *A. soreidiifera*
palpebrata (Taylor) Vainio (Moberg 2011)
podocarpa (Bél.) Awasthi (Moberg & Nash 1999)
pseudospeciosa (Kurok.) W. L. Culb. Syn.: *Anaptychia pseudospeciosa*
rugulosa (Kurok.) Wetmore
sitchensis Goward & W. Noble
speciosa (Wulfen) Trevisan Syns.: *Anaptychia pseudospeciosa* var. *tremulans*, *A. speciosa*
squamulosa (Degel.) W. L. Culb. Syn.: *Anaptychia squamulosa*
tropica (Kurok.) Sipman Syn.: *Anaptychia tropica* (Marcano et al. 1996)
barbifera (Nyl.) K. P. Singh = misidentification for N.A. (Lendemer 2009a)
corallophora (Taylor) Skorepa = *H. crocea* for North American reports
domingensis (Ach.) Trevisan = *H. albicans*
leucomelaena (L.) Poelt = *H. leucomela*
neoleucomelaena (Kurok.) Follmann & Redón = *H. boryi*
propagulifera (Vainio) J. P. Dey = misidentification for North America, mostly *H. neglecta* (Lendemer et al. 2007)
tremulans (Müll. Arg.) W. L. Culb. = *H. speciosa*

HETEROPLACIDIUM Breuss (Breuss 1996)

#**compactum** (A. Massal.) Gueidan & Cl. Roux (Prieto et al. 2012) Syns.: *Catapyrenium compactum*, *Dermatocarpon compactum*, *Verrucaria compacta*
congestum (Breuss & McCune) Breuss Syn.: *Catapyrenium congestum*
#**transmutans** K. Knudsen, Breuss & Kocourk. (Knudsen et al. 2014a)
zamenhofianum (Clauzade & Cl. Roux) Cl. Roux (Kocourková et al. 2012) Syn.: *Verrucaria zamenhofiana*
acarosporoides (Zahlbr.) Breuss = *Placidium acarosporoides*
podolepis (Breuss) Breuss = *Placidium podolepis*

HETEROTHECIUM Flotow

- conspersum (Fée) Flotow = *Piccolia conspersa*
- domingense (Pers.) Flotow = *Letrouitia domingense*
- leucoxanthum (Sprengel) A. Massal. = *Brigantiaea leucoxantha*
- nannarium Tuck. = *Piccolia nannaria*
- pachycheilum Tuck. = *Megalospora pachycheila*
- tuberculosum (Fée) Flotow = *Megalospora tuberculosa*

HOBSONIA Massee

- **christiansenii* B. L. Brady & D. Hawksw. = *Illosporiosis christiansenii*

HOBSONIOPSIS D. Hawksw. (Sikaroodi et al. 2001)

- **santessonii* (Lowen & D. Hawksw.) D. Hawksw. (Diederich 2003)

HOMOSTEGIA Fuckel

- **dermatocarpi* Alstrup & M. S. Cole (Alstrup & Cole 1998)
- **hertelii* D. Hawksw., V. Atienza & M. Cole (Hawksworth et al. 2004)
- **piggotii* (Berk. & Broome) P. Karsten (Esslinger & Egan 1995)
- **parmeliana* (Jacq.) Vouaux (Cole & Hawksworth 2001) Erroneous report based on *H. hertelii* (Hawksworth et al. 2004)

HUBBSIA W. A. Weber (Tehler et al. 1997)

- californica* (Räsänen) W. A. Weber Syn.: *Reinkella californica*
- lumbricoides* W. A. Weber = *Schizopelte lumbricoides* (Ertz & Tehler 2011), but not known north of Mexico
- parishii* (Hasse) Tehler, Loht., Myllys & Sundin = *Schizopelte parishii* (Ertz & Tehler 2011)

HUILIA Zahlbr. = PORPIDIA

- albocaerulescens* (Wulfen) Hertel = *Porpidia albocaerulescens*
- cinereoatra* (Ach.) Hertel = *Porpidia cinereoatra*
- crustulata* (Ach.) Hertel = *Porpidia crustulata*
- elegantior* (H. Magn.) Hertel = *Amygdalaria elegantior*
- flavocaerulescens* (Hornem.) Hertel = *Porpidia flavicunda*
- glaucophaea* (Körber) Hertel = *Porpidia rugosa*
- macrocarpa* (DC.) Hertel = *Porpidia macrocarpa*
- melinodes* (Körber) Hertel = *Porpidia melinodes*
- nigrocruenta* (Anzi) Hertel = *Porpidia macrocarpa*
- panaeola* (Ach.) Hertel = *Amygdalaria panaeola*
- platycarpoides* (Bagl.) Hertel = *Porpidia platycarpoides*
- soredizodes* (Lamy ex Nyl.) Hertel = *Porpidia soredizodes*
- superba* (Körber) Hertel = *Porpidia superba*
- tuberculosa* (Sm.) P. James = *Porpidia tuberculosa*

HYALopeziza Fuckel

- **rapax* Huhtinen (Huhtinen et al. 2008)

HYDROPUNCTARIA Keller, Gueidan & Thüs (Gueidan et al. 2009)

- amphibia* (Clemente) Orange (Orange 2012) Syn.: *Verrucaria amphibia*
- maura* (Wahlenb.) C. Keller, Gueidan & Thüs Syn.: *Verrucaria maura*
- rheitrophila* (Zschacke) C. Keller, Gueidan & Thüs Syn.: *Verrucaria kernstockii*, *V. rheitrophila*
- scabra* (Vězda) C. Keller, Gueidan & Thüs (McCune et al. 2014b)

HYDROTHYRIA J. L. Russell = PELTIGERA

- venosa* J. L. Russell = *Peltigera hydrothyria*

HYMENELIA Kremp.

- arctica** (Lynge) Lutzoni Syn.: *Ionaspis arctica*, *I. epulotica* var. *arctica*
- ceracea** (Arnold) M. Choisy
- cyanocarpa** (Anzi) Lutzoni (Miller et al. 2005)
- epulotica** (Ach.) Lutzoni Syns.: *Ionaspis epulotica*, *Lecanora epulotica*
- heteromorpha** (Kremp.) Lutzoni Syns.: *Ionaspis heteromorpha*, *I. annularis*, *I. ochracella*, *I. reducta*, *I. schismatopis*
- melanocarpa** (Kremp.) Arnold Syn.: *Ionaspis melanocarpa*
- rhodopis** (Sommerf.) Lutzoni Syns.: *Ionaspis ochromicra*, *I. rhodopis lacustris* (With.) M. Choisy = *Ionaspis lacustris*
- ochrolemma** (Vainio) Gowan & Ahti = *Porpidia ochrolemma*
- prevostii** (Duby) Kremp. = *H. epulotica*

HYPERPHYSCIA Müll. Arg.

- adglutinata** (Flörke) H. Mayrhofer & Poelt Syns.: *Physcia adglutinata*, *P. elaeina*, *Physciopsis adglutinata*, *P. elaeina*
- confusa** Essl., C. A. Morse & S. Leavitt (Esslinger et al. 2012)
- minor** (Fée) D. D. Awasthi Syns.: *Physcia minor*, *Physciopsis minor*
- pyrithrocardia** (Müll. Arg.) Moberg & Aptroot (Esslinger et al. 2012)
- syncolla** (Tuck. ex Nyl.) Kalb Syns.: *Physcia syncolla*, *Physciopsis syncolla*

HYPOCENOMYCE M. Choisy

- scalaris** (Ach. ex Lilj.) M. Choisy Syns.: *Lecidea scalaris*, *L. ostreata*, *Psora scalaris*, *P. ostreata anthracophila* (Nyl.) P. James & Gotth. Schneider (Timdal 2002a) = *Carbonicola anthracophila*
- castaneocinerea** (Räsänen) Timdal = *Carbonicola myrmecina*
- friesii** (Ach.) P. James & Gotth. Schneider = *Xylopsora friesii*
- leucococca** R. Sant. = *Toensbergia leucococca*
- oligospora** Timdal (Timdal 2001) = *Fulgidea oligospora*
- praestabilis** (Nyl.) Timdal = *Pycnora praestabilis*
- sierrae** Timdal (Timdal 2001) = *Fulgidea sierrae*
- sorophora** (Vainio) P. James & Poelt = *Pycnora sorophora*
- xanthococca** (Sommerf.) P. James & Gotth. Schneider = *Pycnora xanthococca*

HYPOGYMNIA (Nyl.) Nyl.

- apinnata** Goward & McCune
- austerodes** (Nyl.) Räsänen Syn.: *Parmelia austerodes*
- beringiana** (Krog) McCune (McCune 2008)
- bitteri** (Lynge) Ahti Syn.: *Parmelia bitteri*
- canadensis** Goward & McCune (Goward & McCune 2007)
- castanea** McCune & Krog (McCune 2008)
- dichroma** Goward (Goward et al. 2012)
- duplicata** (Ach.) Rass. Syn.: *Parmelia elongata* (Spribille et al. 2010)
- enteromorpha** (Ach.) Nyl.
- farinacea** Zopf Uncertain for North America (Goward et al. 2012)
- fistulosa** McCune & Krog (McCune 2008)
- gracilis** McCune (McCune 2002)
- heterophylla** L. Pike
- hultenii** (Degel.) Krog Syn.: *Cavernularia hultenii* (Miądlikowska et al. 2011)
- imshaugii** Krog
- inactiva** (Krog) Ohlsson
- incurvoides** Rass. (McCune et al. 2006)
- krogiae** Ohlsson
- lophyrea** (Ach.) Krog Syns.: *Cavernularia lophyrea*, *Parmelia lophyrea* (Miądlikowska et al. 2011)
- lugubris** (Pers.) Krog
- minilobata** McCune & Schoch (McCune & Schoch 2009)
- mollis** L. Pike & Hale

occidentalis L. Pike
oceanica Goward
physodes (L.) Nyl. Syn.: *Parmelia duplicata* var. *douglasicola*, *P. physodes*, *P. oregana*
protea Goward, T. Sprib. & Ahti (Goward et al. 2012)
pulverata (Nyl. ex Crombie) Elix
recurva Goward, Björk, & Hollinger (Goward et al. 2010)
rugosa (G. Merr.) L. Pike
salsa Goward (Goward et al. 2012)
schizidiata McCune (McCune 2002)
subcapitata (Nyl.) Rass.
subobscura (Vainio) Poelt Syn.: *Parmelia subobscura*
subphysodes (Kremp.) Filson (McCune & Rosentreter 1997)
tubulosa (Schaerer) Hav. Syn.: *Parmelia tubulosa*
verruculosa Goward (Goward et al. 2012)
vittata (Ach.) Parrique Syn.: *Parmelia vittata*
wilfiana Goward, T. Sprib. & Ahti (Goward et al. 2010)
amplexa Goward, Björk & T. B. Wheeler (Lumbsch et al. 2011) = *H. imshaugii* (McCune et al. 2011)
atrofusca (Schaerer) Räsänen = *Brodoa atrofusca*, but North American reports are misidentifications
bitteriana (Zahlbr.) Räsänen = *H. farinacea*
elongata (Hillm.) Rass. = *H. duplicata*
encausta (Sm.) Walter Watson = *Brodoa intestiniformis* (but see below)
intestiniformis (Vill.) Räsänen = *Brodoa intestiniformis*, but North American records are misidentifications of, e.g., *Brodoa oroarctica*
metaphysodes (Asahina) Rass. = misidentification for North America (Goward et al. 2010)
oroarctica Krog = *Brodoa oroarctica*
pseudophysodes (Asahina) Rass. North American reports are *H. oceanica*

HYPOTRACHYNA (Vainio) Hale

afrorevoluta (Krog & Swinscow) Krog & Swinscow (Knudsen & Lendemer 2005b)
catawbiensis (Degel.) Divakar, A. Crespo, Sipman, Elix & Lumbsch Syn.: *Cetrariastrum catawbiense*, *Everniastrum catawbiense*, *Parmelia sorocheila* var. *catawbiensis*
consimilis (Vainio) Hale (Lendemer & Harris 2016)
costaricensis (Nyl.) Hale
croceopustulata (Kurok.) Hale Syn.: *Parmelia croceopustulata*
cryptochlora (Vainio) D. Hawksw. & A. Crespo Syn.: *Parmelinopsis cryptochlora* (Divakar et al. 2013)
dactylifera (Vainio) Hale (Nash et al. 1998)
densirhizinata (Kurok.) Hale Syn.: *Parmelia densirhizinata*
dentella (Hale & Kurok.) Hale Syn.: *Parmelia dentella*
ensifolia (Kurok.) Hale Syn.: *Parmelia ensifolia*, *P. lobulifera* var. *insensitiva*
gondylophora (Hale) Hale Syn.: *Parmelia gondylophora*
horrescens (Taylor) Krog & Swinscow Syn.: *Parmelia horrescens*, *Parmelina horrescens*, *Parmelinopsis horrescens* (Divakar 2013)
imbricatula (Zahlbr.) Hale Syn.: *Parmelia imbricatula*, *P. lobulifera*, *P. lobulifera* var. *luteoreagens*
laevigata (Sm.) Hale Syn.: *Parmelia laevigata*
livida (Taylor) Hale Syn.: *Parmelia livida*
lividescens (Kurok.) Hale (Hodkinson 2010)
meridensis Hale & López (Nash, et al. 2002)
minarum (Vainio) Krog & Swinscow Syn.: *Parmelia dissecta*, *P. hubrichtii*, *Parmelina dissecta*, *P. minarum*, *Parmelinopsis minarum* (Divakar 2013)
oostingii (J. P. Dey) Hale Syn.: *Parmelia oostingii*
osseoalba (Vainio) Park & Hale Syn.: *Parmelia formosana*
polydactyla (Krog & Swinscow) T. H. Nash
producta Hale Syn.: *Parmelia producta*
prolongata (Kurok.) Hale Syn.: *Parmelia prolongata*, *P. lobulifera* var. *sanguineoreagens*, *P. rachista*
pseudosinuosa (Asahina) Hale

pulvinata (Fée) Hale Syn.: *Parmelia pulvinata*
punoensis Kurok. & K. H. Moon (Nash et al. 2002)
pustulifera (Hale) Skorepa Syn.: *Parmelia pustulifera*
revoluta (Flörke) Hale Syn.: *Parmelia revoluta*
riparia McCune (McCune 1998a)
rockii (Zahlbr.) Hale Syn.: *Parmelia rockii*
showmanii Hale
sinuosa (Sm.) Hale Syn.: *Parmelia sinuosa*
spumosa (Asahina) Krog & Swinscow Syns.: *Parmelia spumosa*, *Parmelina spumosa*, *Parmelinopsis spumosa* (Divakar et al. 2013)
subsaxatilis (B. de Lesd.) Hale
swinscowii (Hale) Krog & Swinscow Syns.: *Parmelia swinscowii*, *Parmelina swinscowii*, *Parmelinopsis swinscowii* (Divakar et al. 2013)
taylorensis (M. E. Mitch.) Hale (Groner & Dietrich 1996)
thysanota (Kurok.) Hale Syn.: *Parmelia thysanota*
virginica (Hale) Hale Syn.: *Parmelia virginica*
formosana (Zahlbr.) Hale = *H. osseoalba*
rachista (Hale) Hale = *H. prolongata*
sorocheila (Vainio) Divakar, A. Crespo, Sipman, Elix & Lumbsch Reports apparently based on *H. catawbiensis* (Egan 1987)

ICMADOPHILA Trevisan

ericetorum (L.) Zahlbr. Syn.: *Baeomyces aeruginosa*

ILLOSPORIOPSIS D. Hawksw.

***christiansenii** (B. L. Brady & D. Hawksw.) D. Hawks. (Sikaroodi et al. 2001)

ILLOSPORIUM Martius

***carneum** Fr.

***corallinum** Roberge = *Marchandiomyces corallinus*

IMMERSARIA Rambold & Pietschm.

athroocarpa (Ach.) Rambold & Pietschm.

carbonoidea (J. W. Thomson) Esnault & Cl. Roux Syn.: *Lecidea carbonoidea*

IMSHAUGIA S. F. Meyer

aleurites (Ach.) S. F. Meyer Syn.: *Parmeliopsis aleurites*

placorodia (Ach.) S. F. Meyer Syn.: *Parmeliopsis placorodia*

INGVARIELLA Guderley & Lumbsch

bispora (Bagl.) Guderley & Lumbsch (Lumbsch 2004)

INODERMA (Ach.) Gray

byssaceum (Weigel) Gray Syn.: *Arthonia byssacea* (Frisch et al. 2015)

INTRALICHEN D. Hawksw. & M. S. Cole

***baccisporus** Hawksworth & M. S. Cole (Hawksworth & Cole 2002)

***christiansenii** (D. Hawksw.) D. Hawksw. & M. S. Cole Syn.: *Bispora christiansenii* (Hawksworth & Cole 2002)

***lichenicola** (M. S. Christ. & D. Hawksw.) D. Hawksw. & M. S. Cole (Kocourková et al. 2012)

***lichenum** (Diederich) D. Hawksw. & M. S. Cole (Hawksworth & Cole 2002) Syn.: *Bispora lichenum*

INVOLUCROPYRENIUM Breuss (Breuss 1996)

waltheri (Kremp.) Breuss Syn.: *Catapyrenium waltheri*, *Dermatocarpon waltheri*

IONASPIS Th. Fr.

alba Lutzoni

lacustris (With.) Lutzoni Syns.: *Hymenelia lacustris*, *Aspicilia lacustris*, *Lecanora lacustris*, *L. deplanans*

lavata H. Magn. Syn.: *Lecanora lavata*

obtecta (Vainio) R. Sant. (McCune et al. 2014b)

odora (Ach.) Th. Fr. ex Stein Syns.: *Gyalecta odora*, *Lecanora odora*

suaveolens (Fr.) Th. Fr. ex Stein

annularis H. Magn. (Thomson 1997) = *Hymenelia heteromorpha*

arctica Lynge = *Hymenelia arctica*

chrysophana (Körber) Stein = *I. suaveolens*

epulotica (Ach.) Blomb. & Forssell = *Hymenelia epulotica*

epulotica var. *arctica* (Lynge) H. Magn. = *Hymenelia arctica*

heteromorpha (Kremp.) Arnold = *Hymenelia heteromorpha*

melanocarpa (Kremp.) Arnold = *Hymenelia melanocarpa*

ochracella (Nyl.) H. Magn. = *Hymenelia heteromorpha*

ochromicra (Nyl.) Hue = *Hymenelia rhodopis*

reducta H. Magn. = *Hymenelia heteromorpha*

rhodopis (Sommerf.) Blomb. & Forssell = *Hymenelia rhodopis*

schismatopis (Nyl.) Hue = *Hymenelia heteromorpha*

spitsbergensis H. Magn. = nom. invalidum

JAMESIELLA Lücking, Sérus. & Vězda

anastomosans (P. James & Vězda) Lücking, Sérus. & Vězda (Lücking et al. 2007) Syn.: *Gyalideopsis anastomosans*

JAPEWIA Tønsberg

subaurifera Muhr & Tønsberg

tornoënsis (Nyl.) Tønsberg Syns.: *Lecidea tornoënsis*, *Mycoblastus tornoënsis*

carrollii (Coppins & P. James) Tønsberg (Aptroot 1996) = misidentification for North America (Printzen 1999)

JAPEWIELLA Printzen

dollypartoniana J. L. Allen & Lendemer (Allen & Lendemer 2015)

JARXIA D. Hawksw. (Harris 1995a)

ilicicola R. C. Harris (Harris 1995a)

thelenula R. C. Harris (Harris 1995a)

JULELLA Fabre

⁺**asema** R. C. Harris (Harris 1995a)

⁺**dispora** (Müll. Arg.) R. C. Harris (Harris 1995a) Syn.: *Polyblastiopsis dispora*

⁺**fallaciosa** (Arnold) R. C. Harris (Harris 1995a) Syn.: *Polyblastiopsis fallaciosa*

⁺**geminella** (Nyl.) R. C. Harris (Harris 1995a) Syn.: *Polyblastiopsis rappii*

⁺**lactea** (A. Massal.) M. E. Barr (Harris 1995a) Syn.: *Polyblastiopsis lactea*

⁺**sericea** (A. Massal.) Coppins (Aptroot 2002b)

⁺**sublactea** (Nyl.) R. C. Harris (Harris 1995a) Syn.: *Clathroporina exiguella*, *C. amygdalina*, *Polyblastiopsis sublactaea*

⁺**taxodii** R. C. Harris (Harris 1995a)

⁺**variiformis** R. C. Harris (Harris 1995a)

⁺**vitrispora** (Cooke & Harkness) M. E. Barr (Harris 1995a)

KAERNEFELTIA A. Thell & Goward (Thell & Goward 1996)

californica (Tuck.) A. Thell & Goward (Thell & Goward 1996) Syns.: *Alectoria californica*, *A. cetrariza*, *Cetraria californica*, *Cornicularia californica*, *Tuckermannopsis californica*

merrillii (Du Rietz) A. Thell & Goward (Thell & Goward 1996) Syns.: *Cetraria merrillii*, *Tuckermannopsis merrillii*

KALCHBRENNERIELLA Diederich & M. S. Christ.

***cyanescens** (Kalchbr.) Diederich & M. S. Christ. (Diederich 2002)

KARSCHIA Körber

***talcophila** (Ach.) Körber (Hafellner et al. 2002)

***athallina** (Müll. Arg.) Vouaux = *Dactylospora athallina*

***inops** Triebel & Rambold = *Buelliella inops*

KARSTENIOMYCES D. Hawksw.

***peltigerae** (P. Karsten) D. Hawksw. (Alstrup & Cole 1998)

KEPHARTIA R. C. Harris & Lendemer (Lendemer et al. 2013)

crystalligera R. C. Harris & Lendemer

spinadiaboli R. C. Harris & Lendemer

KILIASIA Hafellner = **TONINIA**

athallina (Hepp) Hafellner = *Toninia athallina*

philippea (Mont.) Hafellner = *Toninia philippea*

tristis (Müll. Arg.) Hafellner = *Toninia subnitida*

KIRSCHSTEINIOTHELIA D. Hawksw. Omitted as a totally saprophytic genus

KNUFIA L. J. Hutchinson & Unter.

***peltigerae** (Fuckel) Réblová & Unter. Syn.: *Capronia peltigerae* (Réblová et al. 2013)

KOERBERIA A. Massal.

biformis A. Massal.

sonomensis (Tuck.) Henssen = *Tingiopsidium sonomense* (Hafellner & Spribille 2016)

KOERBERIELLA Stein

wimmeriana (Körber) Stein

KOHLMEYERA Schatz

complicatula (Nyl.) Schatz = *Mastodia tessellata* (Kohlmeyer et al. 2004)

LABROCARPON Etayo & Pérez-Ortega

***canariense** (D. Hawksw.) Etayo & Pérez-Ortega (Seavey & Seavey 2014a)

LAEVIOMYCES D. Hawksw. = **LICHENODIPLIS**

***lecanoricola** M. S. Cole & D. Hawksw. (Cole & Hawksworth 2001) = *Lichenodiplis lecanoricola*

***pertusariicola** (Nyl.) D. Hawksw. = *Lichenodiplis pertusariicola*

LAHMIA Körber

fueistingii Körber = *Arthrorhaphis grisea*

LAMBIELLA Hertel

arenosa McCune & Lumbsch (McCune & Lumbsch 2017)

caeca (J. Lowe) Resl & T. Sprib. Syns.: *Lecidea caeca*, *Rimularia caeca* (Resl et al. 2015)

furvella (Nyl. ex Mudd) M. Westb. & Resl Syns.: *Lecidea furvella*, *Rimularia furvella* (Resl et al. 2015)

gyrizans (Nyl.) M. Westb. & Resl Syn.: *Rimularia gyrizans* (Resl et al. 2015)

impavida (Th. Fr.) M. Westb. & Resl. Syns.: *Lecidea impavida*, *Rimularia impavida* (Resl. et al. 2015)

#**insularis** (Nyl.) T. Sprib. (Spribille et al. 2014a) Syns.: *Lecidea insularis*, *Rimularia insularis*

sphacelata (Th. Fr.) M. Westb. & Resl Syns.: *Lecidea sphacelata*, *Rimularia sphacelata* (Resl et al. 2015)

LASALLIA Mérat

caroliniana (Tuck.) Davydov, Peršoh & Rambold Syn.: *Umbilicaria caroliniana* (Davydov et al. 2010)

papulosa (Ach.) Llano Syns.: *Umbilicaria pustulata* var. *papulosa*, *U. papulosa*

pensylvanica (Hoffm.) Llano Syn.: *Umbilicaria pensylvanica*

pustulata (L.) Mérat Syn.: *Umbilicaria pustulata*

pustulata subsp. *papulosa* (Ach.) W. A. Weber = *L. papulosa*

LASIOSPHAERIOPSIS D. Hawksw. & Sivan.

***stereocaulicola** (Lindsay) O. E. Eriksson & R. Sant. (Zhurbenko & Daniëls 2003)

LATHAGRIUM (Ach.) Gray (Otálora et al. 2014)

auriforme (With.) Otálora, P. M. Jørg. & Wedin Syn.: *Collema auriculatum*, *C. auriforme*, *C. granosum* auct.

cristatum (L.) Otálora, P. M. Jørg. & Wedin Syn.: *Collema cristatum*, *C. cristatum* var. *marginale*

dichotomum (With.) Otálora, P. M. Jørg. & Wedin Syn.: *Collema dicotomum* *C. fluviatile*, *C. stenophyllum*

fuscovirens (With.) Otálora, P. M. Jørg. & Wedin Syn.: *Collema furvum*, *C. fuscovirens*, *C. tuniforme*

undulatum (Flotow) Otálora, P. M. Jørg. & Wedin Syn.: *Collema undulatum*

LAUDERLINDSAYA J. C. David & D. Hawksw. (McCune 1997a) = *Normandina* (Muggia et al. 2010)

***borreri** (Tul.) J. C. David & D. Hawksw. (McCune 1997a) = *Normandina pulchella*

LAURERA Rchb.

madreporiformis (Eschw.) Riddle = *Bathelium madreporiforme* (Harris 1995a)

megasperma (Mont.) Riddle = *Astrothelium megaspermum*

subdisjuncta (Müll. Arg.) R. C. Harris = *Astrothelium subdisjunctum*

varia (Fée) Zahlbr. = misidentification for *North America*

LECANACTIS Körber

abietina (Ach.) Körber

[**Bacidia akompsa** (Tuck.) Fink]

californica Tuck.

dubia G. Merr.

epileuca (Nyl.) Tehler Syns.: *Platygrapha subattingens*, *Schismatomma subattingens*

salicina Zahlbr.

amylacea (Ehrh. ex Pers.) Arnold = *Lecanographa amylacea*

chloroconia Tuck. = *Cresponea chloroconia*

dimelaenoides Egea & Torrente = *Lecanographa dimelaenoides*

**grumulosa* (Dufour) Fr. = *Lecanographa grumulosa*

illicebrosa (Dufour) Fr. = *Lecanographa amylacea*

megaspora (G. Merr.) Brodo = *L. abietina*

nashii Egea & Torrente = *Lecanographa hypothallina*

patellarioides (Nyl.) Vainio = *Bactrospora patellarioides*

premnea (Ach.) Arnold = *Cresponea premnea*

ravenelii (Tuck.) R. C. Harris = *Opegrapha ravenelii*

subattingens (Nyl.) R. C. Harris = *L. epileuca*

subdryophila Follmann & Vězda = *Lecanographa subdryophila*

zahlbruckneri Herre (Fink 1935) = *L. californica* (Ryan & Tehler 2004)

LECANIA A. Massal.

aipospila (Wahlenb.) Th. Fr. (McCune 2017) Syn.: *Lecanora spodophaeiza*

arizonica B. D. Ryan & van den Boom (van den Boom & Ryan 2004b)

brunonis (Tuck.) Herre

#**caloplacicola** B. D. Ryan & van den Boom (van den Boom & Ryan 2004b)

chalcophila B. D. Ryan & van den Boom (van den Boom & Ryan 2004b)
coeruleorubella (Mudd) M. Mayrhofer (van den Boom & Ryan 2004b)
constricta W. A. Weber
croatica (Zahlbr.) Kotlov (Harris & Lendemer 2010)
cuprea (A. Massal.) van den Boom & Coppins Syn.: *Bacidia cuprea*, *B. cupreorosella*, *Bilimbia cupreorosella*
cyrtella (Ach.) Th. Fr. Syn.: *Biatora cyrtella*, *Lecidea cyrtella*
dubitans (Nyl.) A. L. Sm.
dudleyi Herre
erysibe (Ach.) Mudd
flavescens Lynge (Thomson 1997)
franciscana (Tuck.) K. Knudsen & Lendemer Syns.: *Biatora franciscana*, *Catillaria franciscana* (Knudsen & Lendemer 2007)
fructigena Zahlbr.
fuscella (Schaerer) Körber
fuscelloides B. D. Ryan & van den Boom (van den Boom & Ryan 2004b)
[Catillaria groenlandica Lynge]
hassei (Zahlbr.) W. Noble Syn.: *Solenopsora hassei*
hutchinsiae (Nyl.) A. L. Sm. (Spribille et al. 2010)
inundata (Hepp ex Körber) M. Mayrhofer (van den Boom & Ryan 2004b)
koerberiana J. Lahm (McCune 2017)
madida Reese Naesb. & Björk (Reese Naesborg 2008)
naegelii (Hepp) Diederich & van den Boom Syn.: *Bacidia naegelii*, *Bilimbia naegelii* (Ekman 1996)
nylanderiana A. Massal.
pacifica Zahlbr. ex B. D. Ryan & van den Boom (van den Boom & B. D. Ryan 2004b)
polycycla (Anzi) Lettau (van den Boom & B. D. Ryan 2004b)
prasinoides Elenkin (Reese Naesborg 2008)
rabenhorstii (Hepp) Arnold (van den Boom & B. D. Ryan 2004b)
ryaniana van den Boom (van den Boom & Ryan 2004b)
shastensis Herre
stigmatella (Tuck.) S. Ekman (Ekman 1996) Syn.: *Bacidia stigmatella*
subcaesia (Nyl.) B. de Lesd.
subfuscula (Nyl.) S. Ekman (Ekman 1996) Syns.: *Bacidia sibiriensis*, *B. subfuscula*
toninioides Zahlbr.
turicensis (Hepp) Müll. Arg.
albariella (Nyl.) Müll. Arg. = *L. turicensis*
alpivaga Th. Fr. = *Halecania alpivaga*
arctica Lynge = *Caloplaca diphyodes*
brattiae B. D. Ryan & van den Boom (van den Boom & Ryan 2004b) = *L. hassei* (Knudsen & Lendemer 2007)
californica (Zahlbr.) Fink = *L. turicensis* (van den Boom & Ryan 2004b)
cyathiformis Szatala (Tavares et al. 1997) = *Solenopsora cyathiformis*
cyrtellina (Nyl.) Sandst. = *L. cyrtella*
curvescens (Mudd) A. L. Sm. = *Bryonora curvescens*
dimera (Nyl.) Th. Fr. = *L. dubitans*
disceptans (Nyl.) Lynge = *Halecania alpivaga* (Dillman et al. 2011)
pepegospora H. Magn. = *Halecania pepegospora*
perproxima auct. = uncertain species of *Lecania*, perhaps *L. chalcophila* (van den Boom & Ryan 2004b)
perproxima (Nyl.) Zahlbr. = *Caloplaca atroalba* (van den Boom & Ryan 2004b)
subdispersa B. D. Ryan [non (Nyl. ex Hasse) Hasse] = *L. franciscana*
subdispersa (Nyl. ex Hasse) Hasse = *Toninia subdispersa*
syringea (Ach.) Th. Fr. = *L. fuscella*
tenera (Nyl.) Clauzade & Cl. Roux = *Cliostomum tenera*
thallophila H. Magn. = *Halecania alpivaga*

LECANOGRAPHA Egea & Torrente

- aggregata** Egea & Torrente (Egea et al. 2004b, as *Lecanographa* “aff.” *aggregata*)
- amylacea** (Ehrh. ex Pers.) Egea & Torrente Syns.: *Lecanactis amylacea*, *L. illecebrosa*, *Opegrapha illecebrosa*
- brattiae** (Egea & Ertz) Ertz & Tehler (Ertz & Tehler 2011) Syn.: *Opegrapha brattiae*
- dimelaenoides** (Egea & Torrente) Egea & Torrente Syn.: *Lecanactis dimelaenoides*
- *grumulosa** (Dufour) Egea & Torrente Syns.: *Opegrapha diaphoroides*, *Lecanactis grumulosa*, but questionable for North America
- hypothallina** (Zahlbr.) Egea & Torrente Syns.: *Platygrapha hypothallina*, *Schismatomma hypothallinum*, *Opegrapha hypothallina*, *O. hassei*, *Lecanactis nashii*
- insolita** Lendemer & K. Knudsen (Lendemer & Knudsen 2010)
- lyncea** (Sm.) Egea & Torrente (Egea et al. 2004b)
- lynceoides** (Müll. Arg.) Egea & Torrente (Egea et al. 2004b)
- subdryophila** (Follmann & Vězda) Egea & Torrente Syn.: *Lecanactis subdryophila*

LECANORA Ach.

- achroa** Nyl. (Lücking et al. 2011b)
- achroides** Vainio
- actophila** Wedd.
- aitema** (Ach.) Hepp Syn.: *Lecidea aitema*
- alaskensis** H. Magn.
- albella** (Pers.) Ach. var. **albella**
- albella** var. **rubescens** (Imshaug & Brodo) Lumbsch
- albellula** Nyl. (Printzen 2001)
- albocaesiella** B. D. Ryan & T. H. Nash (Ryan et al. 2004)
- albula** (Nyl.) Hue
- aleutica** H. Magn.
- allophana** (Ach.) Nyl.
- anakeestiicola** Lendemer & E. Tripp (Lendemer & Tripp 2015)
- annularis** Lendemer & K. Knudsen (Knudsen et al. 2014c)
- anopta** Nyl. Syns.: *Biatora pullula*, *Lecidea pullula* (Pérez-Ortega et al. 2010)
- anoptiza** Nyl.
- apochroeoides** Vainio
- appalachensis** Lendemer & R. C. Harris (Lendemer et al. 2013)
- arenisaxicola** B. D. Ryan & T. H. Nash (Ryan et al. 2004)
- argentata** (Ach.) Malme
- argentea** Oxner & Volkova
- argopholis** (Ach.) Ach.
- atrosulphurea** (Wahlenb.) Ach.
- austrocalifornica** Lendemer & K. Knudsen (Lendemer & Knudsen 2009)
- bicincta** Ramond
- boligera** (Norman ex Th. Fr.) Hedl.
- brattiae** B. D. Ryan & T. H. Nash (Ryan et al. 2004)
- brodoana** Lumbsch & T. H. Nash
- [**Parmularia brouardii** B. de Lesd.]
- bryopsora** (Doppelb. & Poelt) Hafellner & Türk (Dillman et al. 2012)
- cadubriae** (A. Massal.) Hedl. Syns.: *Lecidea cadubriae*, *L. ramulicola*
- caesiorubella** Ach. subsp. **caesiorubella**
- caesiorubella** subsp. **glaucomodes** (Nyl.) Imshaug & Brodo
- caesiorubella** subsp. **merrillii** Imshaug & Brodo
- caesiorubella** subsp. **saximontana** Imshaug & Brodo
- caesiosora** Poelt (Miller et al. 2005)
- caesiosulphurea** Vainio
- californica** Brodo
- campestris** (Schaerer) Hue
- canadensis** Lynge & H. Magn.

carneolutescens Nyl. (Lumbsch et al. 2003)
carpinea (L.) Vainio
cateilea (Ach.) A. Massal.
[Lecidea caulophylla (Tuck.) Zahlbr.]
cavicola Creveld (Nash et al. 1998)
cenisia Ach.
chlarotera Nyl.
chloroleprosa (Vainio) H. Magn. (Spribille et al. 2010)
chlorophaeodes Nyl.
cinereofusca H. Magn.
circumborealis Brodo & Vitik.
cladonioides Lynge
collatolica J. W. Thomson & T. H. Nash
comonduensis T. H. Nash & Hertel (Nash & Hertel 1997)
confusa Almb.
congesta Lynge
coniferarum Printzen (Printzen 2001)
conizaeoides Nyl. ex Crombie
cupressi Tuck.
demosthenesii Lumbsch & Messuti (Lumbsch et al. 2003)
densa (Śliwa & Wetmore) Printzen (Printzen 2001)
discoënsis Lynge
elapheia Stizenb. (Lücking et al. 2011b)
epanora (Ach.) Ach.
epibryon (Ach.) Ach.
expallens Ach.
farinaria Borrer
floridula Lumbsch
frustulosa (Dickson) Ach. (Spribille et al. 2010)
fuscescens (Sommerf.) Nyl. Syn.: *Lecidea fuscescens*
fuscidula Degel.
gangaleoides Nyl.
geophila (Th. Fr.) Poelt
glabrata (Ach.) Malme
granulifera (Ach.) Nyl.
groenlandica Lynge
gypticola St. Clair & Newberry (Rajvanshi et al. 1998)
helicopis (Wahlenb.) Ach. (identification uncertain)
horiza (Ach.) Lindsay
hybocarpa (Tuck.) Brodo
hypocrocina Nyl. (Seavey & Seavey 2012)
hypopta (Ach.) Vainio Syn.: *Lecidea hypopta*
hypoptoides (Nyl.) Nyl.
impudens Degel. In eastern N.A. at least, a misapplied name (Lendemer et al. 2013)
imshaugii Brodo
inaurata C. A. Morse & Ladd (Morse & Ladd 2016)
insignis Degel.
intricata (Ach.) Ach.
intumescens (Rebent.) Rabenh.
iowensis Fink
jamesii J. R. Laundon (Tønsberg 1997)
kariana Räsänen
latens Printzen (Printzen 2001)
laxa (Śliwa & Wetmore) Printzen (Printzen 2001)
layana Lendemer (Lendemer 2015)
leprosa Fée

leptacina Sommerf.
leptacinella Nyl.
lividolutea Räsänen
louisianae B. de Lesd.
luteovernalis Brodo
marginata (Schaerer) Hertel & Rambold Syns.: *Lecidea marginata*, *L. elata*, *L. purissima*. See note under "*Lecidea amylacea*."
masana Lendemer & R. C. Harris (Lendemer et al. 2013)
maxima Lynge
melaena (Hedl.) Fink
mellea W. A. Weber
meridionalis H. Magn.
microbola I. M. Lamb
microfusca Lynge
miculata Ach.
minutella Nyl.
monticola H. Magn.
mughicola Nyl.
munzii K. Knudsen & Lendemer (Knudsen & Lendemer 2009c)
nashii B. D. Ryan (Ryan et al. 2004)
nealbomarginata Gyelnik
neodegelii B. D. Ryan & T. H. Nash Syn.: *Squamarina degelii* (Ryan et al. 2004)
nordenskioeldii Vainio
nothocaesiella R. C. Harris & Lendemer (Lendemer et al. 2013)
ochraceorubescens Arnold (LaGreca & Lumbsch 2001)
orae-frigidae R. Sant.
oreinoides (Körber) Hertel & Rambold Syns.: *Lecidea oreinodes*, *L. tennesseensis*, *L. tesselina*
orizabana Vainio (Lumbsch et al. 2003)
orosthea (Ach.) Ach. Syn.: *Lecidea orosthea*
pacifica Tuck. Syn.: *L. tetraspora*
paddensis (Tuck.) T. Sprib. Syns.: *Biatora paddensis*, *Lecidea paddensis* (McCune et al. 2014b)
pallidochlorina T. H. Nash, B. D. Ryan & Lumbsch (Ladd & Morse 2012)
pannonica Szatala (McCune 2017)
peninsularis K. Knudsen, Lendemer & Elix (Knudsen et al. 2011a)
permutata Zahlbr.
perplexa Brodo
phaeophora (Stizenb.) H. Magn. Syn.: *Lecidea phaeophora*, *Biatora phaeophora*
phryganitis Tuck.
placidensis (Magnusson) Knoph, Leuckert & Rambold (Knoph & Leuckert 1994) Syns.: *Lecidea placidensis*, *Lecidella placidensis*, *Fuscidea placidensis*
plumosa Müll. Arg. (Nash et al. 1998)
poliophaea (Wahlenb.) Ach.
poluninii Lynge
polytropa (Ehrh.) Rabenh.
populicola (DC.) Duby
pringlei (Tuck.) I. M. Lamb subsp. **pringlei** Syn: *Lecidea pringlei*
pringlei subsp. **brandegei** (Tuck.) Ryan (Ryan et al. 2004)
proserpens Nyl. (Barrett & Thomson 1975)
protervula Stirton (Stirton 1876)
pseudargentata Lumbsch (LaGreca & Lumbsch 2001)
pseudistera Nyl.
pseudolivacea Zahlbr. (Esslinger & Tucker 2009)
pseudomellea B. D. Ryan
pseudosarcopidoides M. Brand & van den Boom (Hutten et al. 2013)
pulicaris (Pers.) Ach.
reagens Norman

remota K. Knudsen & Lendemer (Knudsen et al. 2017)
rhodi Szatala (LaGreca & Lumbsch 2001)
rubicunda Bagl.
rupicola (L.) Zahlbr. Syn.: *Glaucumaria rupicola*, *G. sordida*
salicicola H. Magn.
saligna (Schrader) Zahlbr. Syn.: *Lecanoropsis saligna*
sarcopidoides (A. Massal.) Hedl. (Hutten et al. 2013)
saxigena Lendemer & R. C. Harris (Lendemer & Harris 2014d)
scrobiculata (Th. Fr.) Øvstedal & Elix Syn.: *Lecidea scrobiculata* (Elix & Øvstedal 2004)
semitensis (Tuck.) Zahlbr.
sierrae B. D. Ryan & T. H. Nash
simeonensis K. Knudsen & Lendemer (Lendemer & Knudsen 2009)
sophodopsella Nyl.
soralifera (Suza) Räsänen (McCune 2017)
stenotropa Nyl. (LaGreca & Lumbsch 2001)
stramineoalbida Vainio (Lendemer & Knudsen 2011)
strobilina (Sprengel) Kieffer
subcavicola B. D. Ryan (Ryan et al. 2004)
subimmergens Vainio
subintricata (Nyl.) Th. Fr.
subpallens Zahlbr. (Lumbsch et al. 1997, Lendemer 2004e)
subravida Nyl. (Hutten et al. 2013)
subrugosa Nyl.
subsaligna M. Brand & van den Boom (van den Boom & Brand 2008)
substrobilina Printzen (Printzen 2001)
sulphurea (Hoffm.) Ach. Syn.: *Lecidea sulphurea*
swartzii (Ach.) Ach. (Nash et al. 1998)
symmicta (Ach.) Ach. Syn.: *Lecidea symmicta*
texana W. A. Weber
thallophila H. Magn.
thysanophora R. C. Harris (Harris et al. 2000)
tristiuscula H. Magn.
tropica Zahlbr. (Seavey & Seavey 2012)
umbrosa Degel.
urceolaria (Fr.) Wetm.
utahensis H. Magn. (Knudsen 2012)
valesiaca (Müll. Arg.) Stizenb.
varia (Hoffm.) Ach.
vegae Malme
viriduloflava B. de Lesd.
willeyi Tuck.
wisconsinensis H. Magn.
xanthosora B. D. Ryan & Poelt
xylophila Hue
zeroensis Lendemer (Knudsen et al. 2011b)
agardhiana Ach. (Śliwa 2007b) = *Myriolecis agardhiana*
albescens (Hoffm.) Branth & Rostrup (Śliwa 2007b, Laundon 2010) = *Myriolecis albescens*
albomarginata (B. de Lesd.) Zahlbr. = *Aspicilia albomarginata*
albopruinosa Looman = an *Aspicilia* sp.
alboradiata H. Magn. = *Aspicilia alboradiata*
aliena Zahlbr. = *Aspicilia aliena*
alphoplaca (Wahlenb.) Ach. = *Lobothallia alphoplaca*
alpina Sommerf. = *Bellemerea alpina*
americana (B. de Lesd.) Zahlbr. = *Aspicilia americana*
andrewii B. de Lesd. (Śliwa 2007b) = *Myriolecis andrewii*
annulata Lynge = *Aspicilia annulata*

anseris Lynge = *Aspicilia anseris*
 applegatei Herre = *Bellemeria alpina* (Owe-Larsson & Ryan 2007)
 aquatica (Körber) Hepp = *Aspicilia aquatica*
 arctica Lynge = *Aspicilia arctica*
 arizonica (Tuck. ex Willey) W. A. Weber = *Omphalora arizonica*
 atra (Hudson) Ach. = *Tephromela atra*
 atriseda (Fr.) Nyl. = *Protoparmelia atriseda*
 atosanguinea G. Merr. = *Caloplaca atosanguinea*
 atrynea (Ach.) Röhl. = *Lecanora cenisia*
 badia (Hoffm.) Ach. = *Protoparmelia badia*
 barkmaniana Aptroot & Herk (Kaminsky et al. 2013) = misidentification of *L. floridula* (Lendemer & Harris 2014b)
 basaltica Lynge = *Aspicilia narssaquensis*
 beringii Nyl. ("behringii") = *L. zosteræ* var. *beringii* (Śliwa 2007b)
 bipruinosa Fink = *Protoparmeliopsis bipruinosa*
 bockii (Fr.) Rabenh. = *Rimularia gibbosa*
 bolanderi Tuck. = *Cladidium bolanderi*
 caesiocinerea Nyl. ex Malbr. = *Circinaria caesiocinerea*
 caesiopruinosa H. Magn. = *Aspicilia caesiopruinosa*
 caesiorubella subsp. *lathamii* Imshaug & Brodo = *L. subpallens*
 caesiorubella subsp. *prolifera* (Fink) R. C. Harris = *L. subpallens*
 calcarea (L.) Sommerf. = *Circinaria calcarea*
 cancriformis (Hoffm.) Vainio = *L. caesiorubella* Ach. subsp. *caesiorubella*
 candida (Anzi) Nyl. = *Aspicilia candida*
 candida (Anzi) Nyl. var. *nikrapensis* (Darb.) Oxner (Barrett & Thomson 1975) = *Aspicilia candida*
 carlottiana Lewis & Śliwa (Lewis & Śliwa 2012) = *Myriolecis carlottiana*
 cascadenis H. Magn. = *Protoparmeliopsis garovaglii*
 castanea (Hepp) Th. Fr. = *Bryonora castanea*
 chlarona (Ach.) Nyl. = *L. pulicaris*
 chlorophana (Wahlenb.) Ach. = *Pleopsidium chlorophanum*
 chloropolia (Erichsen) Almb. = *L. impudens* for most North American records
 christoi W. A. Weber = *Rhizoplaca phaedrophthalma*
 chrysoleuca (Sm.) Ach. = *Rhizoplaca chrysoleuca*
 cinerea (L.) Sommerf. = *Aspicilia cinerea*
 cinereofusca var. *appalachensis* Brodo = *L. saxigena* (Lendemer & Harris 2014d)
 cinereorufescens (Ach.) Hepp = *Bellemeria cinereorufescens*
 cingulata Zahlbr. = *Aspicilia cingulata*
 circinata (Pers.) Ach. = *Lobothallia radiosa*
 coilocarpa auct. = *L. circumborealis*
 coilocarpa (Ach.) Nyl. = *L. pulicaris*
 composita Lynge = *Aspicilia composita*
 concinna J. W. Thomson = *Aspicilia concinna*
 conizaea auct. = *L. strobilina*
 conizaea (Ach.) Nyl. ex Crombie = *L. expallens*
 constipans (Nyl.) Nyl. (Fink 1935) = *Edrudia constipans*
 contorta (Hoffm.) J. Steiner = *Circinaria contorta*
 contractula Nyl. = *Myriolecis contractula*
 crenulata Hooker (Śliwa 2007b) = *Myriolecis crenulata*
 crustacea (Savicz) Zahlbr. (Ryan & Nash 1997b) = *Protoparmeliopsis crustacea*
 degelii T. Schauer & Brodo = *L. cinereofusca* var. *cinereofusca*
 demissa (Körber) Zahlbr. = *Caloplaca demissa*
 deplanans Nyl. = *Ionaspis lacustris* (Lendemer & Yahr 2004)
 desertorum Kremp. North American reports are *Circinaria arida*
 diffracta Ach. = *Protoparmeliopsis muralis*
 diphasia Tuck. = *Caloplaca diphasia*
 disceptans Nyl. = *Halecania alpivaga* (Dillman et al. 2011)

dispersa (Pers.) Sommerf. = Myriolecis dispersa
 dispersoareolata (Schaerer) Lamy = Protoparmeliopsis dispersoareolata
 disserpens (Zahlbr.) H. Magn. = Aspicilia disserpens
 distans (Pers. ex Ach.) Nyl. = L. populicola
 effusa (Hoffm.) Ach. = L. saligna
 elevata Lynge = Aspicilia elevata
 elmorei E. D. Rudolph = Circinaria elmorei
 epulotica (Ach.) Nyl. = Hymenelia epulotica
 erythrantha Tuck. (Fink 1935) = Caloplaca erythrantha (Wetmore 2007b)
 exigua f. pruinosa Merrill = Rinodina hallii (Sheard 2010)
 eyerdamii Herre = L. xylophila
 filamentosa (Stirton) Elix & Palice (Pérez-Ortega et al. 2010; Palice et al. 2011) = Palicella
 filamentosa (Rodriguez Flakus & Printzen 2014)
 fimbriata H. Magn. = Aspicilia fimbriata
 flavida Hepp = Eiglera flavida
 flavopunctata Tønsberg = Biatora flavopunctata
 floridana Tuck. = Caloplaca floridana
 flotoviana Sprengel (Ryan et al. 2004) = Myriolecis semipallida for North American reports (Śliwa 2007a, Zhao et al. 2016)
 flowersiana H. Magn. = Myriolecis flowersiana
 frustulosa auct. N. A. in part = L. argopholis (Vänska 1984)
 fugiens Nyl. (Ryan et al. 2004, as Lecanora “aff.” fugiens, Śliwa 2007b) = Myriolecis fugiens
 fuliginosa Brodo = L. argentea
 fulva Schwein. (Fink 1935) Identity uncertain (Harris 2004)
 fuscidula Degelius = L. minutella Nyl. (LaGreca & Lumbsch 2001)
 galactina (Ach.) Nyl. (Fink 1935) = Myriolecis albescens (Scholz 2000, Zhao et al. 2016))
 galactinula Vainio = L. pseudistera
 garovaglii (Körber) Zahlbr. subsp. garovaglii = Protoparmeliopsis garovaglii
 garovaglii subsp. cascadiensis (H. Magn.) B. D. Ryan & T. H. Nash (Ryan et al. 2004) = Protoparmeliopsis garovaglii
 geiserae B. D. Ryan (Ryan et al. 2004) = Protoparmeliopsis geiserae
 gelida (L.) Ach. = Placopsis gelida
 gibbosa (Ach.) Nyl. = Circinaria gibbosa
 gibbosula H. Magn. = Circinaria gibbosa
 glaucomela Tuck. = Pertusaria glaucomela
 glaucophana Nyl. ex Hasse = Rhizoplaca glaucophana
 glaucopsina Nyl. = Aspicilia glaucopsina
 granatina Sommerf. = Euopsis granatina
 granifera Ach. = Malmidea granifera
 grandis H. Magn. = Protoparmelia badia
 grantii H. Magn. = L. xylophila
 gyalectodes Nyl. = Topelia gyalectodes
 gyrophorica Lendemer (Knudsen & Lendemer 2009c) = Protoparmeliopsis gyrophorica
 hagenii (Ach.) Ach. = Myriolecis hagenii
 haydenii Tuck. = Rhizoplaca haydenii
 heteroplaca Zahlbr. = Aspicilia heteroplaca
 holophaea (Mont.) Nyl. = Solenopsora holophaea
 hypospilota Vainio = L. oreinoides
 incusa (Fr.) Vainio = Caloplaca demissa
 intrudens H. Magn. = Miriquidica intrudens
 invadens H. Magn. (Śliwa 2007b) = Myriolecis invadens
 juniperina Śliwa (Ryan et al. 2004) = Myriolecis juniperina
 kofae B. D. Ryan & T. H. Nash = Protoparmeliopsis kofae
 laatokkaensis (Räsänen) Poelt = Protoparmeliopsis laatokkaensis
 lacustris (With.) Nyl. = Ionaspis lacustris
 laevata (Ach.) Nyl. = Aspicilia laevata

laevis Poelt = *L. horiza*, but N. American records are *L. xylophila*
 lavata (H. Magn.) Fink = *Ionaspis lavata*
 lentigera (Weber) Ach. = *Squamarina lentigera*
 lesleyana (Darb.) Paulson = *Aspicilia lesleyana*
 limitata H. Magn. = *Aspicilia limitata*
 marginalis Hasse = *Rhizoplaca marginalis*
 mastoidea Lynge = *Aspicilia berntii*
 mastrucata (Wahlenb.) Ach. (Wetmore 1967) = *Sagedia mastrucata*
 mazatzalensis B. D. Ryan & T. H. Nash = *Protoparmeliopsis mazatzalensis*
 melanaspis (Ach.) Ach. = *Lobothallia melanaspis*
 melanophthalma (DC.) Ramond = *Rhizoplaca melanophthalma*
 mniaroeiza Nyl. = *Rinodina mniaroeiza*
 morioides (Blomb. ex Arnold) Blomb. = *Clauzadeana macula*
 muralis (Schreber) Rabenh. = *Protoparmeliopsis muralis*
 muralis var. brunneola (Mereschk.) Ryan & T. H. Nash (Nash et al. 1998) = *Protoparmeliopsis muralis*
 muralis var. versicolor (Pers.) Tuck. = *Protoparmeliopsis muralis*
 mutabilis Sommerf. = *L. intricata*
 mutabilis (Ach.) Nyl. = *Megaspora verrucosa*
 myrina Fée (Fink 1935) Identity uncertain; possible orthographic error for *L. myrinii* (Esslinger & Tucker 2009)
 myrinii (Fr.) Tuck. = *Aspilidea myrinii*
 narssaquensis Lynge = *Aspicilia narssaquensis*
 nephaea Sommerf. = *Protoparmelia nephaea*
 nevadensis H. Magn. = *Protoparmeliopsis garovaglii*
 nigromarginata H. Magn. = *Rhizoplaca nigromarginata*
 nikrapensis (Darb.) Zahlbr. = *Aspicilia nikrapensis*
 novae-semlicae Zahlbr. = *Aspicilia novae-semlicae*
 novomexicana H. Magn. = *Rhizoplaca novomexicana*
 novomexicana B. de Lesd. = identity uncertain
 obpallens Nyl. ex Hasse = *Acarospora obpallens*
 occidentalis (Lynge) Lynge = *L. argopholis*
 ochrococca (Nyl.) Clauzade & Cl. Roux = *Protoparmelia ochrococca*
 odora (Ach.) Tuck. (Fink 1935) = *Ionaspis odora*
 olivacea (Bagl. & Carestia) J. Steiner (Herre 1911, Fink 1935) = *Lecanora pseudolivacea*
 olivaceopallida H. Magn. = *Aspicilia olivaceopallida*
 opiniconensis Brodo = *Rhizoplaca opiniconensis*
 oregana Tuck. = *L. argopholis*
 pachythallina Lynge = *L. geophila*
 palanderi Vainio = *L. zosteriae*
 pallescens (L.) Röhl = *Ochrolechia pallescens* (L.) A. Massal., but misidentification for North America
 pallescens var. upsaliensis (L.) Flotow = *Ochrolechia upsaliensis*
 pallida (Schreber) Rabenh. var. pallida = *L. albella* var. *albella*
 pallida var. rubescens Imshaug & Brodo = *L. albella* var. *rubescens*
 parisiensis Nyl. = *L. horiza*
 pelobotrya (Wahlenb.) Sommerf. = *Amygdalaria pelobotryon*
 peltata (Ramond) Steudel = *Protoparmeliopsis peltata*
 peltastictoides Hasse (Knudsen 2003) = *Aspicilia peltastictoides* (Knudsen & Kocourková 2013)
 percrenata H. Magn. (Śliwa 2007b) = *Myriolecis percrenata*
 pergibbosa H. Magn. = *Aspicilia pergibbosa*
 perpruinosa Fröberg (Śliwa 2007b) = *Myriolecis perpruinosa*
 perradiata Nyl. = *Aspicilia perradiata*
 persimilis (Th. Fr.) Nyl. = *Myriolecis persimilis*
 pertusa Lynge = *Aspicilia pertusa*
 phaedrophthalma Poelt var. phaedrophthalma = *Rhizoplaca phaedrophthalma*
 phaedrophthalma var. christoi (W. A. Weber) B. D. Ryan (Ryan et al. 2004) = *Rhizoplaca phaedrophthalma*

phaeobola Tuck. = *Protoparmelia ochrococca*
 pinastri (Schaerer) H. Magn. = *L. pulicaris*
 pinguis Tuck. = *Protoparmeliopsis pinguis*
 piniperda Körber = *L. albellula* Nyl. (Printzen 2001)
 pleiospora Nyl. = *Acarospora thelococcoides*
 pleistospora Nyl. = *Acarospora thelococcoides*
 plicigera Zahlbr. = *Aspicilia plicigera*
 polychroma (Anzi) Nyl. = *Aspicilia polychroma*
 praecrenata Nyl. = *Aspicilia praecrenata*
 praeradiosa Nyl. = *Lobothallia praeradiosa*
 privigna (Ach.) Nyl. = *Polysporina simplex*
 privigna var. revertens Tuck. = *Polysporina simplex*
 pruinosa Chaub. Not in North America
 pseudochlarotera Brodo = *L. hybocarpa*
 punicea (Sw.) Ach. North American records are *Haematomma persoonii*
 radiosa (Hoffm.) Schaerer = *Lobothallia radiosa*
 ramulicola (H. Magn.) Printzen & P. May (Printzen & May 2002) = *L. filamentosa*
 reptans Looman = *Aspicilia reptans*
 riparia G. Merr. non (Flotow) M. Steiner = *L. xylophila*
 rolleana (Hue) Zahlbr. = *Aspicilia rolleana*
 rosulata (Körber) Stizenb. = *Aspicilia rosulata*
 rubina (Vill.) Ach. = *Rhizoplaca chrysoleuca*
 rugosa auct. (Fink 1935) = *L. chlarotera* (Brodo 1984)
 rugosella Zahlbr. = *L. chlarotera* (Ryan et al. 2004)
 ryrkaipiae H. Magn. = *Aspicilia ryrkaipiae*
 salina H. Magn. = *Myriolecis salina*
 sambuci (Pers.) Nyl. = *Myriolecis sambuci*
 sanguinea (Kremp.) Mig. = *Bellemeria sanguinea*
 saxicola (Pollich) Ach. = *Protoparmeliopsis muralis*
 schizochromatica Pérez-Ortega, T. Sprib. & Printzen (Pérez-Ortega et al. 2010) = *Palicella*
 schizochromatica (Rodríguez Flakus & Printzen 2014)
 schofieldii Brodo (Brodo 2010) = *Myriolecis schofieldii*
 scotopholis (Tuck.) Timdal = *Miriquidica scotopholis*
 semipallida H. Magn. (Fryday 2004a) = *Myriolecis semipallida*
 sipeana H. Magn. = *Aspicilia sipeana*
 sordida (Pers.) Th. Fr. = *L. rupicola*
 spodophaeiza Nyl. (Fink 1935, Ryan et al. 2004) = *Lecania aipospila*
 stenospora Stizenb. = *Pleopsidium flavum*
 straminea Ach. = *Myriolecis straminea*
 stygioplaca Nyl. = *Aspicilia subradians*
 subdispersa Nyl. ex Hasse = *Toninia subdispersa*
 subfusca (L.) Ach. = nom. rej. prop. = *L. allophana*
 subfusca var. campestris (Schaerer) Rabenh. = *Lecanora campestris*
 subfuscata H. Magn. = *L. argentata*
 sublapponica Zahlbr. = *Aspicilia sublapponica*
 subolivascens Nyl. = *Caloplaca demissa*
 subpallida G. Merr. non C. Knight = *L. subpallens*
 subradians Nyl. = *Aspicilia subradians*
 subradiascens Nyl. = *Aspicilia subradians*
 superfluens H. Magn. = *L. geophila*
 supertegens (Arnold) Zahlbr. = *Aspicilia supertegens*
 sylvestris (Nyl.) Zahlbr. = *L. rubicunda*
 symmictera Nyl. = *L. symmicta*
 tartarea (L.) Ach. = *Ochrolechia tartarea*
 tenera (Nyl.) Crombie = *Cliostomum tenerum*
 tenuis H. Magn. = *Aspicilia tenuis*

tesselina (Tuck.) Zahlbr. = *L. oreinoides*
 tetraspora H. Magn. = *L. pacifica*
 thamnitidis Tuck. = *Cladidium bolanderi*
 thamnoplaca Tuck. = *Lobothallia alphoplaca*
 thelococcoides Nyl. = *Acarospora thelococcoides* (Lendemer 2004a)
 thomsonii H. Magn. = *Rhizoplaca novomexicana* (Ryan & Nash 1991, Zhao et al. 2016)
 torrida Vainio = *Myriolecis torrida*
 turbinata Poelt & Leuckert = *L. zosteræ* var. *beringii* (Śliwa 2007b)
 umbrina (Ach.) A. Massal. = *L. hagenii* (Śliwa 2007b)
 urceolaria (Fr.) Wetmore = *Megaspora verrucosa*
 varia subsp. *densa* Śliwa & Wetmore (Śliwa & Wetmore 2000) = *L. densa*
 varia subsp. *laxa* Śliwa & Wetmore (Śliwa & Wetmore 2000) = *L. laxa*
 variolascens auct. = *L. impudens* for North American records
 #*verrucariicola* B. D. Ryan (Ryan et al. 2004) = *Miriquidica verrucariicola* (Knudsen et al. 2015)
 verrucigera (Hue) Zahlbr. = *Aspicilia verrucigera*
 verrucosa (Ach.) Laurer = *Megaspora verrucosa*
 versicolor (Pers.) Ach. = *Protoparmeliopsis muralis*
 victoriae (F. Wilson) “Tibell” Erroneous creation by typographic error (in ver. 10), should be *Mycocalicium victoriae*
 weberi B. D. Ryan = *Rhizoplaca weberi*
 wetmorei Śliwa (Ryan et al. 2004) = *Myriolecis wetmorei*
 xanthophana Nyl. = *Acarospora xanthophana*, but a misidentification for North America
 zosteræ (Ach.) Nyl. var. *zosteræ* = *Myriolecis zosteræ*
 zosteræ var. *beringii* (Nyl.) Śliwa (Śliwa 2007b) = *Myriolecis zosteræ*
 zosteræ var. *palanderi* (Vainio) Śliwa 2007b) = *Myriolecis zosteræ*

LECANOROPSIS M. Choisy

saligna (Schrader) M. Choisy = *Lecanora saligna*

LECIDEA Ach.

albofuscens Nyl.
albohyalina (Nyl.) Th. Fr. Syn.: *Biatora albohyalina* (Printzen & Tønsberg 1999)
alpestris Sommerf.
amniculensis J. Lowe Possibly a syn. of *Brianaria lutulata* (Coppins & Fryday 2006b)
atomaria Th. Fr.
atrobrunnea (Ramond ex Lam. & DC.) Schaerer subsp. **atrobrunnea**
atrobrunnea subsp. **planaica** Hertel & Leuckert (Hertel & Leuckert 2011)
atromarginata H. Magn.
atroviridis (Arnold) Th. Fr.
auriculata Th. Fr. subsp. **auriculata** (Hertel & Andreev 2003)
auriculata subsp. **brachyspora** Th. Fr. (Hertel & Andreev 2003)
baffiniana H. Magn.
betulicola (Kullh.) H. Magn. f. **endamylea** (Hedl.) Hinter. (Printzen & Tønsberg 1999)
brachyspora (Th. Fr.) Nyl.
brodoana Hertel & Leuckert (Hertel & Printzen 2004)
brunneofusca H. Magn.
californica Zahlbr.
carneoalbens Nyl.
carnulenta (Tuck.) Fink
cascadensis H. Magn.
cellularis Lowe
cinerata Zahlbr.
commaculans Nyl. (Fryday 2006)
confluens (Weber) Ach.
confluentula Müll. Arg. (Knudsen & Kocourková 2014b)
congesta Fink

coriacea Holien & Palice (Holien et al. 2016)
crassilabra Müll. Arg.
crisima Nyl.
cruciaria Tuck.
cyrtidia Tuck. (Harris 1997)
deminutula H. Magn.
deplanaica (Hertel & Leuckert) McCune Syn.: *L. atroburnnea* ssp. *deplanaica* (McCune et al. 2017)
despecta Th. Fr.
diducens Nyl.
eckfeldtii Zahlbr.
ecrustacea (Anzi ex Arnold) Arnold
enalla Nyl. (Printzen 1995)
enterophaea Vainio
epiphaea Nyl. (Spribille et al. 2010)
erythrophaea Flörke ex Sommerf.
extenuata Vainio
flavidolivens (Tuck.) Fink
formosa (Bagl. & Carestia) Knoph & Leuckert (Knudsen et al. 2017)
fuliginosa Taylor
furvonigrans (Tuck. ex Willey) Zahlbr. (Coppins & Fryday 2006b)
fuscatoatra Nyl.
fuscoatra (L.) Ach.
goniophiloides B. de Lesd.
haerjedalica H. Magn. (Fryday 2004a)
hassei Zahlbr.
herteliana Fryday & Coppins (Fryday & Coppins 2012)
hoganii E. Tripp & Lendemer (Tripp & Lendemer 2015)
holopolia (Tuck.) Zahlbr.
homosema Nyl.
hypomela Nyl.
intropallida Fink
katahdinensis Degel.
kingmanii (Hasse) Hertel & S. Ekman (Hertel & Printzen 2004)
laboriosa Müll. Arg. (Hertel 1995)
labradorica Arnold
lactea Flörke ex Schaerer (McCune et al. 2014b)
lapicida (Ach.) Ach. (Coppins 2002; Hertel & Andreev 2003)
leprarioides Tønsberg
leucothallina Arnold
lithophila (Ach.) Ach.
louisianae B. de Lesd.
lyngei Degel.
malmeana Zahlbr. (Spribille et al. 2010)
mamillana Tuck.
mannii Tuck.
meiocarpa Nyl. var. **tacomensis** Printzen & Tønsberg (Printzen & Tønsberg 1999)
melaphanoides Nyl.
merrillii H. Magn.
microps Tuck. (Fink 1935, Perlmutter & Greene 2005)
miccytho Tuck. ex Willey (Coppins & Fryday 2006b)
moreliensis B. de Lesd.
mutabilis Fée
nearingii H. Magn.
nylanderi (Anzi) Th. Fr.
occidentalis Lynge
olivascens Th. Fr

oreophila K. Knudsen & Kocourk. (Knudsen & Kocourková 2014a)
pacifica Herre
paupercula Th. Fr. (Hertel & Andreev 2003)
peliaspis (Tuck.) Zahlbr.
perlatolica Hertel & Leuckert (Hertel & Printzen 2004)
phaeopelidna Vainio
phaeops Nyl.
picea Lynge
plana (J. Lahm) Nyl.
plebeja Nyl.
polaris Lynge
polycocca Sommerf.
populina Müll. Arg. ex Nyl. Syn.: *Micarea populina*
praenubila Nyl.
praetermissa Tønsberg
promiscens Nyl.
protabacina Nyl.
pseudaglaea Hertel (Hertel & Printzen 2004)
pulla Lowe
pumicicola H. Magn.
ramulosa Th. Fr.
rivulorum H. Magn.
roseotincta Coppins & Tønsberg
rubrocastanea T. Sprib. & Printzen (Spribille & Printzen 2007)
sarcogynoides Körber (McMullin & Lendemer 2013)
sauteri Körber (Hertel & Printzen 2004)
scabridula Hedl. nom. illeg. (Spribille & Björk 2008)
silacea Ach.
somphoterella Vainio
sphaerella Hedl. = a species of *Lecania*? (Printzen 1995)
steineri Hertel
strasseri Zahlbr. (Spribille et al. 2010)
stratura K. Knudsen & Lendemer (Knudsen et al. 2017)
subaglaea B. de Lesd.
subcandida H. Magn.
subfilamentosa (Zahlbr.) Fryday (Fryday 2008)
subrhagadiella Lynge
swartzioidea Nyl.
syncarpa Zahlbr. (McCune 1998b)
tenayucae B. de Lesd.
tenuissima Lynge
tessellata Flörke
tessellata var. **caesia** (Anzi) Arnold
theodori Lynge
torquens Müll. Arg. = a species of *Lecanora*? (Printzen 1995)
trapelioides Printzen (Hertel & Printzen 2004)
truckeei Herre
turgidula Fr. Syn.: *Biatora turgidula*
umbonata (Hepp) Mudd
uniformis McCune (McCune et al. 2017)
varians Ach. Syn.: *Biatora varians*, *Pyrrhospora varians* (Hertel & Printzen 2004), *Lecidea subtilis* (Lendemer & Harris 2014c)
versicolor Schwein. (Printzen 1995)
virginiensis Calk. & Nyl.
xanthococcoides Zahlbr.
ablephora Nyl. = *Ramonia ablephora*

acrocyanea (Th. Fr.) H. Magn. = *Lecidella patavina*
 adirondackii H. Magn. = *Psilolechia clavulifera*
 admiscens Nyl. = *Trapeliopsis glaucopholis*
 aenea (Fr.) Nyl. = *Miriquidica garovaglio*
 aeruginosa Borrer = *Trapeliopsis flexuosa*
 aglaea Sommerf. = *Calvitimela aglaea*
 aglaeida Nyl. = *Calvitimela aglaea*
 ahlesii (Hepp) Nyl. (Harris 1995b) = *Bryobilimbia ahlesii*
 ahlesii var. nemoralis (J. Lowe) Fryday & Coppins (Coppins & Fryday 2006b) = *Bryobilimbia ahlesii*
 var. nemoralis
 aitema Ach. = *Lecanora aitema*
 alaiensis Vainio = *Lecidella patavina*
 alaskensis Nyl. = *Herteliana alaskensis*
 albidocinerella (Vainio) Vainio = *Lecidella effugiens*
 albocaerulescens (Wulfen) Ach. = *Porpidia albocaerulescens*
 albonigra H. Magn. = *Lecidella carpathica* (Coppins & Fryday 2006b)
 albosuffusa Th. Fr. = *Farnoldia jurana*
 aleutica Degel. = *Fuscidea aleutica*
 amabilis B. de Lesd. = *Carbonea latypizodes*
 amaurospoda (Anzi) Vainio = *Lecidea pullata*
 "amylacea Ach. 1810" nom. illeg. Probably refers to *Lecanora marginata*
 aniptiza Stirton = *Micarea denigrata*
 anthracophila Nyl. = *Carbonicola anthracophila*
 antoniensis H. Magn. = *L. hassei*
 apochroeiza Nyl. = *Biatora subduplex*
 arctica Sommerf. = *Frutidella caesioatra*
 arctogena (Th. Fr.) H. Olivier = *Calvitimela testaceoatra*
 arcuatula (Arnold) Nyl. = *Fuscidea recensa* var. *arcuatula*
 armeniaca (DC.) Fr. = *Calvitimela armeniaca*
 assimilata Nyl. = *Micarea assimilata*
 assimilis (Körber) Th. Fr. = *Carbonea assimilis*
 associata Th. Fr. = *Geltingia associata*
 atrata (Ach.) Wahlenb. = *Tremolecia atrata*
 atrobrunnea subsp. deplanaica Hertel & Leuckert (Hertel & Leuckert 2011) = *L. deplanaica* (McCune et al. 2017)
 atrobrunnea subsp. saxosa Hertel & Leuckert (Hertel & Printzen 2004) = *L. syncarpa* (McCune et al. 2014b)
 atrobrunnea subsp. stictica Hertel & Leuckert (Hertel & Printzen 2004) = *L. protabacina* (McCune et al. 2014b)
 atrofulva Sommerf. = *Miriquidica atrofulva*
 atrofusca (Hepp) Mudd = *Bryobilimbia hypnorum*
 atrolutescens Nyl. = *L. mannii*
 atronivea Arnold = *Carbonea atronivea*
 austrocalifornica Zahlbr. = *Carbonea latypizodes*
 berengeriana (A. Massal.) Nyl. (Hertel & Printzen 2004) = *Mycobilimbia berengeriana*
 botryosa (Fr.) Th. Fr. = *Hertelidea botryosa*
 brandegei Tuck. = *Lecanora pringlei* subsp. *brandegei*
 brouardii (B. de Lesd.) Zahlbr. = *Psorula rufonigra*
 brujaeriana (D. Dietr.) Leighton = *Ainoa mooreana*, but a misidentification for North America
 cadubriae (A. Massal.) Nyl. = *Lecanora cadubriae*
 caeca J. Lowe = *Lambiella caeca*
 caesioatra Schaerer = *Frutidella caesioatra*
 caesiocoronata J. Lowe = *Lecidea olivascens* (Degelius 1957); belongs to *Lecanora* according to Printzen (1995)
 calcivora (Ehrh.) Nyl. = *Clauzadea immersa*
 carbonoida J. W. Thomson = *Immersaria carbonoida*

carpathica (Körber) Szatala = *Lecidella carpathica*
 catalinaria Stizenb. = *Lecidella asema*
 caudata Nyl. (Fink 1935) = *Ropalospora lugubris*
 caulophylla (Tuck.) Zahlbr. = a *Lecanora* sp.
 chalybeiza Nyl. = *Leimonis erratica*
 cinereoatra Ach. = *Porpidia cinereoatra*
 cinereorufa Schaerer = *Schaereria cinereorufa*
 cinnabarina Sommerf. = *Ramboldia cinnabarina*
 circumnigrata H. Magn. = *Miriquidica pulvinata*
 circumnigrata var. reagens H. Magn. = *Miriquidica lulensis*
 coarctata (Turner ex Sm.) Nyl. = *Trapelia coarctata*
 colludens Nyl. = *Rhizocarpon hochstetteri*
 columbiana H. Magn. = *L. tessellata*
 columnata J. Lowe = *Cecidonia xenophana*
 conferenda Nyl. = *Adelolecia kolaensis*
 contigua Fr. = *Porpidia macrocarpa*
 contigua var. convexella (Wainio) Fink (Claassen 1917) = *Porpidia macrocarpa*
 coroniformis Kremp. = *Psora crenata*
 crassipes (Th. Fr.) Nyl. = *Helocarpon crassipes*
 crenata (Taylor) Stizenb. = *Psora crenata*
 crustulata (Ach.) Sprengel = *Porpidia crustulata*
 cuprea Sommerf. = *Biatora cuprea*
 cyanea (Ach.) Rohl. = *L. tessellata*
 cyanescens Lynge = *L. lapicida*
 cyathoides (Ach.) Ach. = *Fuscidea cyathoides*, but a misidentification for North America
 cyrtella Ach. = *Lecania cyrtella*
 decipiens (Hedwig) Ach. = *Psora decipiens*
 degelii H. Magn. = *Porpidia degelii* (Lendemer & Harris 2014c)
 delincta Nyl. = *Bryobilimbia ahlesii* (Arup 2004, Fryday et al. 2014)
 declinis Tuck. = *Catillaria nigroclavata* (Ekman 1996)
 demissa (Rutstr.) Ach. = *Lecidoma demissum*
 deustata Zahlbr. = *Miriquidica deusta*
 diapiensiae Th. Fr. = *Bryobilimbia diapiensiae*
 dicksonii auct. = *Tremolecia atrata*
 dicksonii (Gmelin) Ach. = nomen dubium
 dilutiuscula Nyl. = *Brianaria bauschiana*
 diversa J. Lowe = *Porpidia contraponenda*
 dolodes Nyl. = *Schaeraria dolodes*
 efflorescens (Hedl.) Erichsen = *Biatora efflorescens*
 elabens Fr. = *Ramboldia elabens*
 elaeochroma (Ach.) Ach. = *Lecidella elaeochroma*
 elata Schaerer = *Lecanora marginata*
 elegantior H. Magn. = *Amygdalaria elegantior*
 ementiens Nyl. = *Biatora ementiens* (Printzen 2014)
 endolitheia Lynge = *Lecidella patavina*
 enteroleuca auct. = *Lecidella* spp.
 epiiodiza Nyl. = *Schaereria endocyanea*
 epixanthoidiza Nyl. nom. rej. prop. = *Biatora efflorescens*
 erratica Körber = *Leimonis erratica*
 euphorea (Flörke) Nyl. = *Lecidella euphorea*
 evansii H. Magn. = *Lecidella carpathica*
 fissuriseda Poelt = *Mycobilimbia fissuriseda*
 flavocaerulescens Hornem. = *Porpidia flavicunda*
 flexuosa (Fr.) Nyl. = *Trapeliopsis flexuosa*
 floridensis Nyl. = *Malmidea floridensis* (Cáceres et al. 2017)
 friesii Ach. = *Xylopsora friesii*

furfuracea Pers. = *Phyllopsora furfuracea*
 furfurosa Tuck. ex Nyl. = *Malmidea furfurosa*
 furva J. Lowe = *Miriquidica plumbeoatra* (Coppins & Fryday 2006b)
 furvella Nyl. ex Mudd = *Lambiella furvella*
 fusca (Schaerer) Th. Fr. = *Bryobilimbia hypnorum*
 fuscescens Sommerf. = *Lecanora fuscescens*
 fuscoatrina Hertel & Leuckert (Hertel & Printzen 2004) = *L. cascadiensis* (Hutten et al. 2013)
 fuscocinerea Nyl. = *Schaereria fuscocinerea*
 fuscorubens (Nyl.) Nyl. (Fink 1935) = *Clauzadea monticola* (Scholz 2000)
 garovaglioi Schaerer = *Miriquidica garovaglioi*
 gelatinosa Flörke = *Trapeliopsis gelatinosa*
 geophana Nyl. = *Steinia geophana*
 glaucophaea Körber = *Porpidia rugosa* (Fryday 2005)
 glaucopholis Nyl. = *Trapeliopsis glaucopholis*
 glebulosa (Fr.) Clem. = *Trapeliopsis wallrothii*, but misidentifications for North America
 globulosa Flörke = *Biatora globulosa*
 globifera Ach. = *Psora globifera*
 glomerulosa (DC.) Steudel = *Lecidella euphorea*
 goniophila auct. = *Lecidella anomaloides*
 granosa Tuck. = *Bacidia granosa* (Ekman 2014)
 granulata H. Magn. = *Lecidella granulata*
 granulosa (Hoffm.) Ach. = *Trapeliopsis granulosa*
 granulosa var. phyllizans Zahlbr. = *Trapeliopsis glaucopholis*
 gregaria G. Merr. = *Trapelia glebulosa*
 grisella Flörke ex Schaerer = *L. fuscoatra*
 griseoatra (Flotow) Schaerer (Fink 1935) = *Miriquidica griseoatra* (Santesson et al. 2004)
 gyrodes H. Magn. = *Fuscidea recensa* var. *arcuatula*
 gyalizella Nyl. = *Gyalecta gyalizella* (Baloch et al. 2013a)
 gyrophoroides Sprengel (Fink 1935) Identity uncertain (Esslinger & Tucker 2009)
 hebescens Nyl. = *Porpidia albocaerulescens* (Lendemer 2004a)
 helvola (Körber) Th. Fr. = *Biatora helvola*
 helvola var. longispora Degel. = *Biatora longispora*
 heppii R. A. Anderson & W. A. Weber = *Lecidella wulfenii*
 homalodes Nyl. = *L. tessellata* Flörke (Hertel 1991)
 humilis J. Lowe = *Miriquidica plumbeoatra*
 humosa (Hoffm.) Nyl. = *Placynthiella uliginosa*
 hypnorum Lib. = *Bryobilimbia hypnorum*
 hypocrita A. Massal. = *Farnoldia hypocrita*
 hypopta Ach. = *Lecanora hypopta*
 ictERICA (Mont.) Taylor = *Psora ictERICA*
 impavida Th. Fr. = *Lambiella impavida*
 instrata Nyl. = *Miriquidica instrata*
 insularis Nyl. = *Lambiella insularis*
 internectens Nyl. = *Biatora subduplex*
 intrudens H. Magn. = *Carbonia intrudens* (Dillman et al. 2012)
 intumescens (Flotow) Nyl. = *Lambiella insularis*
 jurana Schaerer = *Farnoldia jurana*
 kochiana Hepp = *Fuscidea kochiana*, but apparently a misidentification for N.A. (Fryday 2008)
 kochiana var. subreagens H. Magn. = *Fuscidea scrupulosa*
 lacus-crateris H. Magn. = *Lecidella stigmathea*
 laticida var. pantherina Ach. (Hertel & Andreev 2003) = *L. lactea* (Coppins 2002)
 latypea auct. non Ach. = *Lecidella carpathica*
 latypea Ach. = *L. plana*
 latypiza Nyl. = *Lecidella carpathica*
 lepidastrum Tuck. = *Buellia lepidastrum*
 leptoboloides Nyl. = *L. laboriosa*

leucophaea (Flörke ex Rabenh.) Nyl. = Miriquidica leucophaea
 leucophaeoides Nyl. = Miriquidica leucophaeoides
 limborina (Nyl.) Lamy = Rimularia limborina
 limitata auct. = Lecidella elaeochroma
 limosa Ach. = Protomicarea limosa
 lithospersa Zahlbr. = Farnoldia hypocrita
 lopadioides (Th. Fr.) Grumann = Ainoa mooreana, but a misidentification for North America
 lowensis H. Magn. = Fuscidea lowensis
 lucida (Ach.) Ach. = Psilolechia lucida
 lugubris Sommerf. = Ropalospora lugubris
 lulensis (Hellbom) Stizenb. = Miriquidica lulensis
 lurida (Ach.) DC. = Romjularia lurida
 luridella Tuck. = Psora luridella
 lynceola Th. Fr. = Micarea lynceola, but a misidentification for N. America (Coppins & Fryday 2006b)
 lynceola auct. N. Am. = Brinaria bauschiana (Coppins & Fryday 2006b)
 lyngiana Zahlbr. = Adelolecia pilati
 macrocarpa (DC.) Steudel = Porpidia macrocarpa
 macrocarpa var. trullisata (Arnold) Mig. = Porpidia zeoroides
 mamillaria Tuck. (Mohr 1901) Apparent typographical error for L. mamillana
 manni Tuck. (Esslinger & Tucker 2009) Orthographic variant of L. mannii
 marciensis J. Lowe = Miriquidica pycnocarpa (Coppins & Fryday 2006b)
 marginata Schaerer = Lecanora marginata
 marylandensis H. Magn. = Miriquidica leucophaea (Coppins & Fryday 2006b)
 medialis Tuck. ex Nyl. = Bacidia medialis (Ekman 1996)
 meiocarpa Nyl. = Biatora meiocarpa
 meiocarpa var. tacomensis Printzen & Tønsberg = Biatora meiocarpa var. tacomensis
 melancheima Tuck. = Ramboldia elabens
 melinodes (Körber) H. Magn. ex Lynge = Porpidia melinodes
 micacea Körber = Lecidella stigmatea
 michenerii (Tuck.) Identity uncertain (Esslinger & Tucker 2009)
 minuta (Nyl.) Nyl. = Biatora meiocarpa
 misella (Nyl.) Nyl. = Micarea misella
 mollis (Wahlenb.) Nyl. = Fuscidea mollis
 monticola Ach. = Clauzadea monticola
 mundula Müll. Arg. = Lecanora oreinodes (Rambold 1989)
 myriocarpella (G. Merr.) Zahlbr., nom. illeg., probable synonym of Lecidea enalla (Printzen 1995)
 myriocarpoides Nyl. = L. plebeja
 neglecta Nyl. (Fink 1935) = Lepraria neglecta
 nemoralis J. Lowe = Bryobilimbia ahlesii var. nemoralis
 nivalis Anzi = Farnoldia micropsis
 novomexicana (B. de Lesd.) W. A. Weber ex R. A. Anderson = Psora nipponica
 oblongula H. Magn. = Caloplaca oblongula
 obtegens Th. Fr. = Trapelia obtegens
 occidentalis Lynge = L. tessellata (Hertel 1991)
 ochrococca Nyl. = Protoparmelia ochrococca
 ochrophora Nyl. = Piccolia ochrophora
 oligotropha J. R. Laundon = Placynthiella oligotropha
 olivacea (Hoffm.) A. Massal. = Lecidella elaeochroma
 oreinodes (Körber) W. A. Weber & Hertel = Lecanora oreinoides
 ornata (Sommerf.) Hue = Trapelia glebulosa
 orosthea (Ach.) Ach. = Lecanora orosthea
 ostreata (Hoffm.) Schaerer = Hypocenomyce scalaris
 *oxyspora (Tul.) Nyl. = Phacopsis oxyspora
 paddensis (Tuck.) Zahlbr. = Lecanora paddensis (McCune et al. 2014b)
 pallida Th. Fr. = Pilophorus dovrensis
 panaeola (Ach.) Ach. = Amygdalaria panaeola

pantherina (Ach.) Th. Fr. = *L. lactea*
 parasema (Ach.) Ach. (Fink 1935) = *Lecidella elaeochroma* (Scholz 2000)
 parasemella Nyl. = *Schaereria parasemella*
 parvifolia Pers. = *Phyllopsora parvifolia*
 "pelobotrion" = *Amygdalaria pelobotryon*
 pelobotrya (Wahlenb.) Leighton = *Amygdalaria pelobotryon*
 petri (Tuck.) Zahlbr. = *Romjularia lurida*
 phaeophora Stizenb. = *Lecanora phaeophora*
 phylliscina Nyl. = *Porpidia macrocarpa*
 pilati (Hepp) Körber = *Adelolecia pilati*
 placidensis H. Magn. = *Lecanora placidensis*
 planetica Tuck. ex Willey = *Leimonis erratica*
 platycarpa Ach. = *Porpidia macrocarpa*
 plumbeoatra Vainio = *Miriquidica plumbeoatra*
 polycarpa Flörke (Fink 1935) = *L. lapicida* (Santesson et al. 2004)
 porphyrospoda (Anzi) Th. Fr. = *Myochroidea porphyrospoda*
 praeruptorum Du Rietz & H. Magn. = *Fuscidea praeruptorum*
 prasinula (Wedd.) B. de Lesd. = *Lecidella scabra*
 pringlei Tuck. = *Lecanora pringlei*
 pruinosa Ach. = *L. lithophila*
 pulcherrima Vainio = *Anamylopsora pulcherrima*
 pullata (Norman) Th. Fr. (Jørgensen et al. 2002) = *Frutidella pullata*
 pullula (Tuck.) Zahlbr. = *Lecanora anopta*
 punctella (Willey) Zahlbr. = *Micarea rhabdogena*
 purissima Darb. = *Lecanora marginata*
 pycnocarpa (Körber) Ohlert = *Miriquidica pycnocarpa*
 quadricolor (Dickson) Borrer = *Trapeliopsis granulosa*
 querneae (Dickson) Ach. = *Pyrrhospora querneae*
 ramulicola H. Magn. = *Lecanora cadubriae*
 recedens Nyl. = a non-lichenized fungus
 recensa Stirton = *Fuscidea recensa*
 rhaetica Hepp ex Th. Fr. = *Farnoldia micropsis*
 rivulosa Ach. = *Fuscidea cyathoides*, but a misidentification for North America
 rubiformis (Ach.) Wahlenb. = *Psora rubiformis*
 rufofusca (Anzi) Nyl. = *Myochroidea rufofusca*
 rufonigra (Tuck.) Nyl. = *Psorula rufonigra*
 rugosa J. Lowe = *Schaereria cinereorufa* (Coppins & Fryday 2006b)
 russellii Tuck. = *Psora russellii*
 russula Ach. = *Ramboldia russula*
 sanguineoatra sens. Nyl. = *Bryobilimbia hypnorum*
 santae-monicae H. Magn. = *L. laboriosa* (Knudsen & Lendemer 2005a)
 santensis Tuck. = *Phyllopsora santensis*
 saxosa R. A. Anderson = *L. syncarpa* (Hertel 1995, Leuckert & Hertel 2003)
 scabra Taylor = *Lecidella scabra*
 scalaris (Ach. ex Lilj.) Ach. = *Hypocenomyce scalaris*
 schizopeltica Hertel & Leuckert (Hertel & Printzen 2004, Hertel & Leuckert 2011) = *L. truckeei* (Lendemer & Knudsen 2007)
 scholanderi Lynge = *Toninia tristis* subsp. *scholanderi*
 scotopholis (Tuck.) Herre = *Miriquidica scotopholis*
 scrobiculata Th. Fr. = *Lecanora scrobiculata* (Elix & Øvstedal 2004)
 scrupulosa (Eckfeldt) H. Magn. = *Fuscidea scrupulosa*
 shushanii J. W. Thomson = *Lecidea aglaeida* (Haugan & Timdal 1994) = *Calvitimela aglaea* (Hertel & Andreev 2003)
 soledifera J. Lowe = *Porpidia macrocarpa* (Coppins & Fryday 2006b)
 solediza Nyl. = *Porpidia tuberculosa*
 soledizodes (Lamy ex Nyl.) Vainio = *Porpidia soledizodes*

speirea (Ach.) Ach. = *Porpidia speirea*
 sphacelata Th. Fr. = *Lambiella sphacelata*
 stenotera (Nyl.) Nyl. = *L. alpestris*
 steriza (Ach.) Vainio = *Porpidia macrocarpa*
 stigmathea Ach. = *Lecidella stigmathea*
 subballinita Nyl. = *Micarea ternaria* (Nyl.) Vězda (Printzen 1995)
 subauriculata B. de Lesd. non Lynge = *Lecidella* spp.
 subauriculata Lynge non B. de Lesd. = *Adelolecia pilati*
 subcinnabarina Tønsberg = *Pyrrhospora subcinnabarina*
 subcontinuior B. de Lesd. = *Carbonea latypizodes*
 subduplex (Nyl.) Nyl. = *Biatora subduplex*
 suberratica J. Lowe = *Micarea erratica*
 sublimosa Nyl. = *Megalaria jemtlandica*
 subplebeia Nyl. = *Carbonea latypizodes*
 subplebeja Vainio This name (a corticolous Brazilian taxon) was first added to the North American checklist in the 1960 Hale & Culberson version, apparently erroneously replacing *L. subplebeia* Nyl. (a saxicolous California taxon) which had been in the 1956 version.
 subplumbea Anzi = (?) *Miriquidica griseoatra*
 subramosa J. Lowe = *Toninia squalecens* (Coppins & Fryday 2006b)
 subsimplex H. Magn. = *Porpidia subsimplex*
 subsorediza Lynge = *Bellemerea subsorediza*
 subtilis Degel. = *Lecidea varians* (Lendemer & Harris 2014c)
 sulphurea (Hoffm.) Wahlenb. = *Lecanora sulphurea*
 sylvana (Körber) Th. Fr. = *Biatoraa globulosa*
 sylvicola Flotow = *Brianaria sylvicola*
 symmicta (Ach.) Ach. = *Lecanora symmicta*
 symmictella Nyl. (Spribille & Björk 2008) = *Puttea caesia* (Dillman et al. 2012)
 templetonii Taylor = *Bryobilimbia hypnorum*
 tenebrosa Flotow = *Schaereria fuscocinerea*
 tennesseensis Nyl. = *Lecanora oreinoides*
 tessellina Tuck. = *Lecanora oreinoides*
 testacea (Hoffm.) Ach. = *Psora testacea* Not included in the North American flora.
 texana W. A. Weber = *Xanthopsorella texana*
 tornoënsis Nyl. = *Japewia tornoënsis*
 trochodes (Taylor ex Leighton) Crombie = *Rimularia limborina*
 tuckeii Herre (Fink 1935) Apparent typographic error for *L. truckeei*
 tumida A. Massal. = *Porpidia tuberculosa*
 uliginosa (Schrader) Ach. = *Placynthiella uliginosa*
 ultima Th. Fr. = *Cephalophysia leucospila*
 umbonella Nyl. = *Cecidonia umbonella*
 vacciniicola Tønsberg = *Biatora vacciniicola*
 vernalis (L.) Ach. = *Biatora vernalis*
 vernicoma Tuck. = *Buellia vernicoma*
 violascens H. Magn. = *L. laboriosa* (Knudsen & Lendemer 2005a)
 viridans (Flotow) Lamy = *Lecidella viridans*
 viridescens (Schrader) Ach. = *Trapeliopsis viridescens*
 *vitellinaria Nyl. = *Carbonea vitellinaria*
 vorticiosa (Flörke) Körber = *Carbonea vorticiosa*
 vulgata Zahlbr. = *Lecidella stigmathea*
 wallrothii Flörke ex Sprengel = *Trapeliopsis wallrothii*, but misidentifications for North America
 washingtonensis H. Magn. = *L. cascadiensis*
 wulfenii (Hepp) Arnold = *Lecidella wulfenii*
 xanthococca Sommerf. = *Pycnora xanthococca*
 ypocrita A. Massal. = *Farnoldia hypocrita*
 zahlbruckneri Fink = *Lecidella latypiza* (Knoph & Leuckert 1994)

LECIDELLA Körber

- anomaloides** (A. Massal.) Hertel & H. Kilius Syn.: *Lecidea goniophila* auct.
asema (Nyl.) Knoph & Hertel Syn.: *Lecidea catalinaria*
bullata Körber
carpathica Körber Syns.: *Lecidea latypiza*, *L. carpathica*, *L. latypea* auct., *L. evansi*, *L. albonigra*
chiricahuana Knoph & Leuckert (Knoph & Leuckert 2004)
dimelaenophila Hertel
effugiens (Nilson) Knoph & Hertel Syn.: *Lecidea albidocinerella*
elaeochroma (Ach.) M. Choisy Syns.: *Lecidea elaeochroma*, *L. olivacea*, *L. limitata* auct.
enteroleucella (Nyl.) Hertel
euphorea (Flörke) Hertel Syns.: *Lecidea euphorea*, *L. glomerulosa*
flavosorediata (Vězda) Hertel & Leuckert
granulata (H. Magn.) R. C. Harris Syn.: *Lecidea granulata*
granulosula (Nyl.) Knoph & Leuckert (Knoph & Leuckert 2004)
latypiza (Nyl.) M. Choisy
laureri (Hepp ex Th. Fr.) Körber (Goward et al. 1996)
meiococca (Nyl.) Leuckert & Hertel
nashiana Knoph & Leuckert (Knoph & Leuckert 2004)
patavina (A. Massal.) Knoph & Leuckert Syns.: *Lecidea acrocyanea*, *L. alaiensis*, *L. endolitheia*
pulveracea (Flörke ex Th. Fr.) P. Sydow (Laundon 2005)
scabra (Taylor) Hertel & Leuckert Syns.: *Lecidea scabra*, *L. prasinula*
stigmatea (Ach.) Hertel & Leuckert Syns.: *Bacidia arthoniza*, *Lecidea micacea*, *L. stigmatea*, *L. vulgata*, *L. lacus-crateris*
[**Lecidea subauriculata** B. de Lesd. non Lynge]
subviridis Tønsberg (Coppins & Fryday 2006b)
tumidula (A. Massal.) Knoph & Leuckert (Knoph & Leuckert 2004)
viridans (Flotow) Körber Syn.: *Lecidea viridans*
wulfenii (Hepp) Körber Syns.: *Lecidea heppii*, *L. wulfenii*
alaiensis (Vainio) Hertel = *L. patavina*
chodatii (Samp.) Knoph & Leuckert = *L. granulosula*
elaeochromoides (Nyl.) Knoph & Hertel = *L. asema*
enteroleuca auct. = various *Lecidella* spp.
glomerulosa (DC.) M. Choisy = *L. euphorea*
goniophila auct. = *L. anomaloides*
inamoena (Müll. Arg.) Hertel = *L. patavina*
incongruella (Vainio) Hertel & Leuckert = *L. effugiens placidensis* (H. Magn.) R. C. Harris = *Lecanora placidensis* (Knoph & Leuckert 1994)
prasinula (Wedd.) Hertel = *L. scabra*
pyncocarpa Körber = *Miriquidica pyncocarpa*
spitsbergensis (Lynge) Hertel & Leuckert = *L. patavina*
subincongrua (Nyl.) Hertel & Leuckert var. *elaeochromoides* (Nyl.) Hertel & Leuckert = *L. asema*

LECIDOMA Gotth. Schneider & Hertel

- demissum** (Rutstr.) Gotth. Schneider & Hertel Syns.: *Lecidea demissa*, *Lepidoma demissum*, *Psora demissa*

LECIOGRAPHA A. Massal. = **OPEGRAPHA**

- **glaucomaria* (Nyl.) H. Olivier = *Phacographa glaucomaria*
**glaucomarioidea* (Willey) Fink (Fink 1935) = *Dactylospora glaucomarioides*
**inspersa* (Tul.) Rehm = possibly *Dactylospora parasitica*
**lamyi* (O. J. Rich. ex Nyl.) Sacc. & D. Sacc. = *Opegrapha lamyi*
**parasitica* A. Massal. = *Opegrapha rupestris*
**pertusariicola* (Willey ex Tuck.) Fink = *Dactylospora pertusariicola*
**urceolata* (Fr.) Körber = *Dactylospora urceolata*

LECIOPHYSMA Th. Fr.

finmarkicum Th. Fr.
furfurascens (Nyl.) Gyelnik
saximontana (T. Sprib., P. M. Jørg. & M. Schultz) P. M. Jørg., Wedin & S. Ekman Syn.:
Santessoniella saximontana (Ekman et al. 2014)

LEIGHTONIOMYCES D. Hawksw. & B. Sutton
#**phillipsii** (Berk. & Leighton) D. Hawksw. & B. Sutton (McCune & Stone 2009)

LEIMONIS R. C. Harris (Harris 2009)
erratica (Körber) R. C. Harris & Lendemer Syns.: *Lecidea chalybeiformis*, *L. erratica*, *L. suberratica*,
Micarea erratica

LEIODERMA Nyl.
cherokeense P. M. Jørg. (Jørgensen & Tønsberg 2005)
sorediatum D. J. Galloway & P. M. Jørg.

LEIORREUMA Eschw.
erodens F. Seavey & J. Seavey (Seavey et al. 2017)
exaltatum (Mont. & Bosch) Staiger Syn.: *Graphis diversa*, *Phaeographis exaltata* (Staiger 2002)
explicans (Fink) Lendemer Syn.: *Phaeographina explicans* (Lendemer & Knudsen 2008b)
patellulum (Fée) Staiger Syn.: *Phaeographis patellula* (Esslinger & Tucker 2009)
sericeum (Eschw.) Staiger Syn.: *Phaeographis sericea* (Staiger 2002)

LEMMOPSIS (Vainio) Zahlbr.
arnoldiana (Hepp) Zahlbr. (Schultz 2002d)

LEMPHOLEMMA Körber
chalazanum (Ach.) B. de Lesd. Syn.: *Psorotichia segregata*, *Collemopsis segregata* (Schultz 2007b)
cladodes (Tuck.) Zahlbr.
intricatum (Arnold) Zahlbr.
isidiodes (Nyl. ex Arnold) H. Magn.
oblique-peltatum (Eschw.) C. W. Dodge
polyanthes (Bernh.) Malme Syn.: *Collema myriococcum*
radiatum (Sommerf.) Henssen
umbella (Tuck.) Zahlbr. Syn.: *Omphalaria umbella*
vesiculiferum Henssen
albonigrum H. Magn. = *L. cladodes*
fennicum (Räsänen) Degel. (Goward 1999) = *L. intricatum*
myriococcum (Ach.) Th. Fr. = *L. polyanthes*

LEPIDOCOLLEMA Vainio
marianum (Fr.) P. M. Jørg. Syns.: *Pannaria mariana*, *Parmeliella mariana* (Ekman et al. 2014)
Uncertain for North America (Jørgensen 2000c)
stylophorum (Vainio) P. M. Jørg. Syns.: *Pannaria stylophora*, *Parmeliella stylophorum* (Ekman et al. 2014)

LEPIDOMA (Ach.) Gray
demissum (Rutstr.) M. Choisy = *Lecidoma demissum*

LEPRA Scop. (Hafellner & Türk 2016, Lendemer & Harris 2017)
albescens (Hudson) Hafellner Syns.: *Pertusaria albescens*, *P. globulifera*, *P. scutellaris*
amara (Ach.) Hafellner Syns.: *Pertusaria amara*, *Variolaria amara*
andersoniae (Lendemer) Lendemer & R. C. Harris Syn.: *Pertusaria andersonii*
commutata (Müll. Arg.) Lendemer & R. C. Harris Syn.: *Pertusaria commutata*, *P. copiosa*
dactylina (Ach.) Hafellner Syn.: *Pertusaria dactylina*
excludens (Nyl.) Hafellner Syn.: *Pertusaria excludens*

floridana (Dibben) Lendemer & R. C. Harris Syn.: *Pertusaria floridana*
hypothamnolica (Dibben) Lendemer & R. C. Harris Syn.: *Pertusaria hypothamnolica*
multipunctoides (Dibben) Lendemer & R. C. Harris Syn.: *Pertusaria multipunctoides*, *Variolaria multipunctoides*
ophthalmiza (Nyl.) Hafellner Syn.: *Pertusaria lecanina* subsp. *nigra*, *P. ophthalmiza*, *Variolaria ophthalmiza*
panyrga (Ach.) Hafellner Syn.: *Pertusaria panyrga*
pustulata (Brodo & W. Culb.) Lendemer & R. C. Harris Syn.: *Haematomma pustulatum*, *Loxospora pustulata*, *Variolaria pustulata*
subdactylina (Nyl.) Lendemer & R. C. Harris Syn.: *Pertusaria subdactylina*
trachythallina (Erichsen) Lendemer & R. C. Harris Syn.: *Pertusaria trachythallina*, *Variolaria trachythallina*
ventosa (Malme) Lendemer & R. C. Harris Syn.: *Pertusaria ventosa*
waghornei (Hulting) Lendemer & R. C. Harris Syn.: *Pertusaria waghornei*, *Variolaria waghornei*

LEPRARIA Ach.

albicans (Th. Fr.) Lendemer & Hodkinson Syn.: *Leprocaulon albicans*, *Stereocaulon albicans* (Lendemer & Hodkinson 2013)
arbuscula (Nyl.) Lendemer & Hodkinson Syn.: *Leprocaulon arbuscula*, *Stereocaulon arbuscula* (Lendemer & Hodkinson 2013)
aurescens Orange & Wolseley (Lendemer 2010a)
barbatica Lendemer (Lendemer 2010a)
brodoi Lendemer & Tønsberg (Lendemer & Tønsberg 2014)
caesiella R. C. Harris (Lendemer 2005a)
cryophila Lendemer (Lendemer 2010a)
diffusa (J. R. Laundon) Kukwa Syn.: *Leproloma diffusum* (Kukwa 2002)
disjuncta Lendemer (Lendemer 2010a)
eburnea J. R. Laundon
elobata Tønsberg (Tønsberg 1997)
finkii (B. de Lesd.) R. C. Harris (Lendemer 2013b) Syn.: *Crocynia aliciae*, *C. americana*
friabilis Lendemer, K. Knudsen & Elix (Lendemer et al. 2008b)
gracilescens (Nyl.) Lendemer & Hodkinson Syn.: *Leprocaulon gracilescens* (Lendemer & Hodkinson 2013)
harrisiana Lendemer (Lendemer 2012a)
hodkinsoniana Lendemer (Lendemer 2011b)
humida Slav.-Bayr. & Orange (Lendemer 2013a, 2013b)
jackii Tønsberg (Kümmerling et al. 1995)
lanata Tønsberg (Tønsberg 2007)
lecanorica Tønsberg (Tønsberg 2004b)
leprolomopsis Diederich & Sérus. (Lendemer 2013b)
membranacea (Dickson) Vainio Syn.: *Leproloma membranaceum*, *Amphiloma lanuginosum* (Kukwa 2002)
neglecta (Nyl.) Erichsen Syn.: *Crocynia neglecta*
nivalis J. R. Laundon
normandinoides Lendemer & R. C. Harris (Lendemer & Harris 2007)
oxybapha Lendemer (Lendemer 2012b)
pacifica Lendemer (Lendemer 2011b)
rigidula (B. de Lesd.) Tønsberg
squamatica Elix (Lendemer 2008)
subalbicans (I. M. Lamb) Lendemer & Hodkinson Syn.: *Leprocaulon subalbicans*, *Stereocaulon subalbicans* (Lendemer & Hodkinson 2013)
torii Pérez-Ortega & T. Sprib. (Pérez-Ortega & Spribille 2009a)
vouauxii (Hue) R. C. Harris Syn.: *Leproloma vouauxii* (Kukwa 2002)
xanthonica Lendemer (Lendemer 2010a)
xerophila Tønsberg (Tønsberg 2004b)
adhaerens K. Knudsen, Elix & Lendemer (Knudsen et al. 2007) = *Leprocaulon adhaerens*

aeruginosa auct. = misidentification for North America
 aeruginosa (Weiss) Sm. = not a lichen-forming fungus
 alpina (B. de Lesd.) Tretiach & Baruffo (Knudsen & Elix 2007a) = *L. neglecta* (Lendemer 2013a, 2013b)
 arctica (Lyngby) Wetmore = *L. vouauxii*
 borealis Loht. & Tønsberg = *L. neglecta* (Lendemer 2013b)
 cacuminum sensu J. R. Laundon = *L. neglecta* (Lendemer 2013a, 2013b)
 cacuminum sensu Loht. = *L. neglecta* (Lendemer 2013a, 2013b)
 caesioalba (B. de Lesd.) J. R. Laundon = *L. neglecta* (Lendemer 2013a, 2013b)
 candelaris (L.) Fr. = *Chrysothrix candelaris*
 chlorina (Ach.) Ach. = *Chrysothrix chlorina*
 citrina (Schaerer) Rabenh. = *Chrysothrix candelaris*
 crassissima (Hue) Lettau = misidentification for North America (Lendemer 2011b)
 crassissima var. isidiata Llimona = misidentification for North America (Lendemer 2011b)
 diffusa (J. R. Laundon) Kukwa var. chrysodetoides (J. R. Laundon) Kukwa = *L. diffusa* (Lendemer 2013a, 2013b)
 flava (Schreber) Sm. = *Chrysothrix candelaris*
 frigida J. R. Laundon = *L. eburnea* (Tønsberg 2004b)
 gelida Tønsberg & Zhurb. (Kukwa & Zhurbenko 2010) = *Lepraria neglecta* (Lendemer 2013b)
 incana (L.) Ach. = misidentification for North America (Lendemer 2011b)
 lesdainii (Hue) R. C. Harris = *Botryolepraria lesdainii*
 lobificans auct. N.A. non Nyl. = *L. finkii* (Lendemer 2013b)
 moroziana Lendemer (Lendemer 2010a) = *Andreiomyces morozianus*
 salazinica Tønsberg (Tønsberg 2007) = *L. elobata* (Lendemer 2013a, 2013b)
 santamonicae K. Knudsen & Elix (Knudsen & Elix 2007b) = *Leprocaulon santamonicae*
 terricola Lendemer (Lendemer 2010a) = *Leprocaulon terricola*
 texta K. Knudsen, Elix & Lendemer (Knudsen & Elix 2007a) = *Leprocaulon textum*
 zonata Brodo = *L. neglecta*

LEPROCAULON Nyl. ex Lamy

adhaerens (K. Knudsen, Elix & Lendemer) Lendemer & Hodkinson Syn.: *Lepraria adhaerens* (Lendemer & Hodkinson 2013)
americanum Lendemer & Hodkinson (Lendemer & Hodkinson 2013)
knudsenii Lendemer & Hodkinson (Lendemer & Hodkinson 2013)
santamonicae (K. Knudsen & Elix) Lendemer & Hodkinson Syn.: *Lepraria santamonicae* (Lendemer & Hodkinson 2013)
terricola (Lendemer) Lendemer & Hodkinson Syn.: *Lepraria terricola* (Lendemer & Hodkinson 2013)
textum (K. Knudsen, Elix & Lendemer) Lendemer & Hodkinson Syn.: *Lepraria texta* (Lendemer & Hodkinson 2013)
 albicans (Th. Fr.) Nyl. = *Lepraria albicans*
 arbuscula (Nyl.) Nyl. = *Lepraria arbuscula*
 gracilescens (Nyl.) I. M. Lamb & A. Ward = *Lepraria gracilescens*
 microscopicum (Vill.) Gams ex D. Hawksw. = *L. quisquiliare*, but North American records are *L. americanum* (Lendemer & Hodkinson 2013)
 pseudoarbuscula (Asahina) I. M. Lamb & A. Ward = *Lepraria subalbicans* for North American records
 quisquiliare (Leers) M. Choisy = misidentification for North America
 subalbicans (I. M. Lamb) I. M. Lamb & A. Ward = *Lepraria subalbicans*

LEPROCALLEMA Vainio

americanum Vainio Apparently absent from N.A. north of Mexico (Schultz 2007a)

LEPROLOMA Nyl. ex Crombie = LEPRARIA (Kukwa 2002)

angardianum (Øvstedal) J. R. Laundon = *Lepraria neglecta*
 cacuminum (A. Massal.) J. R. Laundon = *Lepraria neglecta*
 diffusum J. R. Laundon var. diffusum = *Lepraria diffusa*
 diffusum J. R. Laundon var. chrysodetoides J. R. Laundon (Goward et al. 1996) = *Lepraria diffusa*

membranaceum (Dickson) Vainio = Lepraria membranacea
"membranaceum var. chrysodetoides" Removed as a typographical error here
vouauxii (Hue) J. R. Laundon = Lepraria vouauxii

LEPROPLACA (Nyl.) Hue (Arup et al. 2013)

cirrochroa (Ach.) Arup, Frödén & Söchting Syn.: Caloplaca cirrochroa
chrysodeta (Vainio) J. R. Laundon ex Ahti Syn.: Caloplaca chrysodeta
obliterans (Nyl.) Arup, Frödén & Söchting Syn.: Caloplaca obliterans

LEPTOCHIDIUM M. Choisy

albociliatum (Desm.) M. Choisy Syns.: Polychidium albociliatum, Leptogium albociliatum, L.
pilosellum
crenatulum (Nyl.) P. M. Jørg. (Jørgensen 2006)

LEPTOGIDIUM Nyl. (Muggia et al. 2011)

contortum (Henssen) T. Sprib. & Muggia (Muggia et al. 2011)
dendriscum (Nyl.) Nyl. Syn.: Polychidium dendriscum
intricatum Nyl. = Dendriscocaulon intricatum

LEPTOGIUM (Ach.) Gray

acadiense J. W. Hinds, F. L. Anderson & Lendemer (Stone et al. 2016)
adpressum Nyl.
arcticum P. M. Jørg.
arsenei Sierk
austroamericanum (Malme) C. W. Dodge
azureum (Sw. ex Ach.) Mont.
brebissonii Mont.
burgessii (L.) Mont.
byssinum (Hoffm.) Zwackh ex Nyl.
chloromelum (Ach.) Nyl.
compactum D. F. Stone, F. L. Anderson & J. W. Hinds (Stone et al. 2016)
cookii D. F. Stone & Lendemer (Stone et al. 2016)
coralloideum (Meyen & Flotow) Vainio (Jørgensen & Nash 2004) Syn.: Parmelia coralloideum
corticola (Taylor) Tuck.
crenatulum (Nyl.) Vainio
cyanescens (Rabenh.) Körber
digitatum (A. Massal.) Zahlbr.
floridanum Sierk
fusisporum (Tuck.) C. W. Dodge
hibernicum M. E. Mitch. ex P. M. Jørg. (Nealy & Anderson 2010)
hirsutum Sierk
hypotrachynum Müll. Arg.
insigne P. M. Jørg. & Tønsberg (Jørgensen & Tønsberg 2010)
isidiosellum (Riddle) Sierk
joergensenii Marcelli & Kitaura (Kitaura et al. 2015)
juressianum Tav. (Lendemer et al. 2008c)
laceroides B. de Lesd.
marginellum (Sw.) Gray
microstictum Vainio
milligranum Sierk
nanum Herre (McCune & Rosentreter 2007)
papillosum (B. de Lesd.) C. W. Dodge (Jørgensen & Nash 2004)
phyllocarpum (Pers.) Mont.
pseudofurfuraceum P. M. Jørg. & Wallace (Jørgensen 1997)
resupinans Nyl. (Jørgensen & Nash 2004)
rivulare (Ach.) Mont.

rugosum Sierk
saturninum (Dickson) Nyl.
sessile Vainio
stipitatum Vainio
albociliatum Desm. = *Leptochidium albociliatum*
americanum Degel. = *L. laceroides*
amphineum Ach. ex Nyl. = *L. byssinum*
apalachense (Tuck.) Nyl. = *Scytinium apalachense* (Otálora et al. 2014)
aquale (Arnold) P. M. Jørg. (Jørgensen & Tønsberg 1999) = *Scytinium aquale* (Otálora et al. 2014)
aragonii Otálora (Otálora et al. 2008) = *Scytinium aragonii* (Otálora et al. 2014)
arizonicum Zahlbr. = *Scytinium juniperinum*
biatorinum (Nyl.) Leighton (Jørgensen & Tønsberg 1999) = *L. nanum*, for North American report (McCune & Rosentreter 2007)
bullatum (Sw. in Ach.) Nyl. (Fink 1935) Probable misidentification for North America (Esslinger & Tucker 2009)
burnetiae C. W. Dodge Misidentifications for North America (Stone et al. 2016)
burnetiae C. W. Dodge var. *hirsutum* (Sierk) P. M. Jørg. = *L. hirsutum*
caesiellum Tuck. = *L. byssinum*
caesium (Ach.) Vainio = *L. cyanescens*
californicum Tuck. = *Scytinium californicum* (Otálora et al. 2014)
cellulosum P. M. Jørg. & Tønsberg (Jørgensen & Tønsberg 1999) = *Scytinium cellulosum* (Otálora et al. 2014)
contortum Sierk = *Scytinium contortum* (Otálora et al. 2014)
corniculatum (Hoffm.) Minks = *Scytinium palmatum* (Otálora et al. 2014)
crenatellum (Nyl.) Tuck. = *L. rivulare*
dactylinum Tuck. = *Scytinium dactylinum* (Otálora et al. 2014)
denticulatum Nyl. = misidentification for North America (Kitaura et al. 2015)
denticulatum sensu Sierk (1964) = *L. joergensenii* (Kitaura et al. 2015)
erectum Sierk = *Scytinium erectum* (Otálora et al. 2014)
fragile (Tayl.) Nyl (Fink 1935) = *Scytinium fragile* Taylor, but a likely misidentification for North America (Degelius 1954)
furfuraceum (Harm.) Sierk = *L. pseudofurfuraceum* (for North American reports; Jørgensen 1997)
gelatinosum (With.) J. R. Laundon = *Scytinium gelatinosum* (Otálora et al. 2014)
hildenbrandii (Garov.) Nyl. = a European species, a misidentification for North America (Sierk 1964)
imbricatum P. M. Jørg. = *Scytinium imbricatum* (Otálora et al. 2014)
inflexum Nyl. = *L. burgessii* (fide Jørgensen)
intermedium (Arnold) Arnold = *Scytinium intermedium* (Otálora et al. 2014)
intricatulum Nyl. (Fink 1935) = *Scytinium teretiusculum* (Sierk 1964)
juniperinum Tuck. = *Scytinium juniperinum* (Otálora et al. 2014)
lacerum (Sw.) Gray = *Scytinium lichenoides*
lichenoides (L.) Zahlbr. = *Scytinium lichenoides* (Otálora et al. 2014)
lividofuscum (Florke ex Schlecht.) Flotow = *Scytinium tenuissimum*
microdium (Nyl.) Zahlbr. = *Scytinium plicatile* (Sierk 1964)
minutissimum (Flörke) Fr. = *Scytinium subtile*
minutissimum auct. = *Scytinium intermedium*
musciola (Sw.) Fr. = *Polychidium musciola*
palmatum (Hudson) Mont. (Hoffman & Hafellner 2000; Santesson et al. 2004) = *Scytinium palmatum* (Otálora et al. 2014)
papillosum (B. de Lesd.) C. W. Dodge North American reports refer to *L. pseudofurfuraceum*
parculum Nyl. = *Scytinium parculum* (Otálora et al. 2014)
perminutum Hedr. = *Scytinium subtile*
pilosellum G. Merr. = *Leptochidium albociliatum*
platynum (Tuck.) Herre = *Scytinium platynum* (Otálora et al. 2014)
plectenchymum Fink = *Scytinium juniperinum*
plicatile (Ach.) Leighton = *Scytinium plicatile* (Otálora et al. 2014)
polycarpum P. M. Jørg. & Goward = *Scytinium polycarpum* (Otálora et al. 2014)

pulchellum (Ach.) Nyl. = Collema pulchellum
 pulvillus Tuck. (Fink 1935) Possible synonym of Scytinium lichenoides (Sierk 1964)
 rhyarodes Nyl. (Fink 1935) = Scytinium callopismum
 rivale Tuck. = Scytinium rivale (Otálora et al. 2014)
 schraderi (Bernh.) Nyl. = Scytinium schraderi (Otálora et al. 2014)
 scotinum (Ach.) Fr. = Scytinium gelatinosum (Santesson et al. 2004)
 sinuatum (Hudson) A. Massal. = Scytinium gelatinosum
 siskiyouensis D. F. Stone & Ruchty (Stone & Ruchty 2008) = Scytinium siskiyouensis (Otálora et al. 2014)
 subaridum P. M. Jørg. & Goward = Scytinium subaridum (Otálora et al. 2014)
 subtile (Schrader) Torss. = Scytinium subtile (Otálora et al. 2014)
 tacomae P. M. Jørg. & Tønsberg (Jørgensen & Tønsberg 1999) = Scytinium tacomae (McCune et al. 2014b)
 tenuissimum (Dickson) Körber = Scytinium tenuissimum (Otálora et al. 2014)
 teretiusculum (Wallr.) Arnold = Scytinium teretiusculum (Otálora et al. 2014)
 tremelloides auct. = L. cyanescens
 turgidum (Ach.) Crombie (McCune & Rosentreter 2007) = Scytinium turgidum (Otálora et al. 2014)

LEPTORHAPHIS Körber

atomaria (Ach.) Szatala
 #**contorta** Degel.
 #**epidermidis** (Ach.) Th. Fr.
lucida Körber
 +**parameca** (A. Massal.) Körber
 quercus (Beltr.) Körber = identity uncertain

LEPTOSPHAERULINA McAlpine

***peltigerae** (Fuckel) Riedel

LEPTOTREMA Mont. & Bosch (Frisch 2006)

auberianum (Mont.) Fink = Stegobolus auberianus
 glaucescens (Nyl.) Müll. Arg. = Leucodecton glaucescens
 heterosporum (C. Knight ex F. M. Bailey) Zahlbr. = Thelotrema santense
 laeviusculum (Nyl.) Zahlbr. = Ocellularia laeviusculum
 lepadodes (Tuck.) Zahlbr. = Thelotrema monosporum
 monosporum (Nyl.) Müll. Arg. = Thelotrema monosporum
 obturascens (Nyl.) Hale = Ocellularia bahiana
 polycarpum Müll. Arg. = Leucodecton subcompunctum
 ravenelii (Tuck.) Fink = Sanguinotrema wightii
 reclusum (Kremp.) Zahlbr. = Leucodecton compunctellum
 santense (Tuck.) Zahlbr. = Reimnitzia santensis
 wightii (Taylor) Müll. Arg. (Frisch 2006) = Sanguinotrema wightii (Lücking et al. 2015)

LETHARIA (Th. Fr.) Zahlbr.

columbiana (Nutt.) J. W. Thomson
gracilis Kroken ex McCune & Altermann (McCune & Altermann 2009)
lupina Altermann, Leavitt & Goward (Altermann et al. 2016)
vulpina (L.) Hue Syn.: Evernia vulpina
 californica (Lév.) Hue = L. columbiana
 vulpina (L.) Hue f. californica (Lév.) W. A. Weber = L. columbiana

LETHARIICOLA Grumann = **SPHAEROPEZIA** (Baloch et al. 2013b)

***cucularis** (Norman) Lumbsch & D. Hawksw. = Sphaeropezia cucularis
 ***sipei** Grumann = Sphaeropezia sipei

LETROUTIA Hafellner & Bellem.

domingensis (Pers.) Hafellner & Bellem. Syns.: *Bombyliospora domingensis*, *Lopadium domingense*, *Heterothecium domingense*
parabola (Nyl.) R. Sant. & Hafellner
vulpina (Tuck.) Hafellner & Bellem. Syns.: *Lopadium vulpinum*, *Bombyliospora vulpina*

LETTAUIA D. Hawksw. & R. Sant.

***santessonii** Ihlen & Tønsberg (Ihlen & Tønsberg 1996)
***cladoniicola** D. Hawksw. & R. Sant. (Esslinger & Egan 1995) = *Cryptodiscus cladoniicola*

LEUCOCARPIA Vězda

biatorella (Arnold) Vězda (Buck & Harris 2001)
dictyospora (Orange) R. Sant. (Alstrup 2004)

LEUCODECTON Massal. (Frisch 2006)

compunctellum (Nyl.) Frisch (Lücking et al. 2011b) Syns.: *Leptotrema reclusum*, *Myriotrema reclusum*
compunctum (Ach.) A. Massal. (Seavey et al. 2017)
fissurinum (Hale) A. Frisch (Seavey et al. 2017)
glaucescens (Nyl.) A. Frisch Syns: *Leptotrema glaucescens*, *Myriotrema glaucescens*, *Thelotrema glaucescens* (Frisch 2006)
occultum (Eschw.) A. Frisch Syn: *Myriotrema compunctum* (Frisch 2006)
phaeosporum (Nyl.) Rivas Plata & Lücking (Seavey et al. 2014)
subcompunctum (Nyl.) A. Frisch Syns: *Leptotrema polycarpum* (Frisch 2006), *Myriotrema subcompunctum*
willei (Nyl.) R. C. Harris Syn.: *Phlyctis willei* (Lendemer & Harris 2014d)

LEUCOGYROPHANA Pouzar

***lichenicola** Thorn, Malloch & Ginns (Thorn et al. 1998)

LICHENOBARYA Etayo, Diederich & Lawrey (Lawrey et al. 2015)

***usneae** (Etayo) Etayo, Diederich & Lawrey (Lawrey et al. 2015)

LICHENOCHORA Hafellner

***arctica** Zhurb. (Zhurbenko 2013)
***galligena** R. Sant. & Hafellner (Diederich 2003)
***haematommatus** R. C. Harris & Lendemer (Lendemer et al. 2016c)
***lepidiotae** (Anzi) Etayo & Nav.-Ros. (Zhurbenko 2013)
***obscurioides** (Lindsay) Triebel & Rambold (Hoffmann & Hafellner 2000)
***rinodinae** Zhurb. (Zhurbenko 2013)
***verrucicola** (Wedd.) Nik. Hoffm. & Hafellner (Hoffmann & Hafellner 2000)
***weillii** (Werner) Hafellner & R. Sant.
***xanthoriae** Triebel & Rambold
***thallina** (Cooke) Hafellner = *L. obscurioides*

LICHENOCONIUM Petrak & H. Sydow

***cargillianum** (Lindsay) D. Hawksw. (Diederich 2003)
***christiansenii** M. S. Cole & D. Hawksw. (Cole & Hawksworth 2004)
***edgewoodensis** Alstrup & M. S. Cole (Alstrup & Cole 1998)
***erodens** M. S. Christ. & D. Hawksw.
***follmannii** Kondratyuk & Galloway (Kondratyuk & Galloway 1995)
***laevisporum** Kalb & Hafellner (Kalb et al. 1995)
***lecanorae** (Jaap) D. Hawksw.
***lichenicola** (P. Karsten) Petrak & H. Sydow (Etayo et al. 2007)
***pyxidatae** (Oudem.) Petrak & H. Sydow
***usneae** (Anzi) D. Hawksw.
***xanthoriae** M. S. Christ.

LICHENODIPLIS Dyko & D. Hawksw.

- ***dendrographae** Diederich & van den Boom (Diederich 2003)
- ***lecanorae** (Vouaux) Dyko & D. Hawksw.
- ***lecanoricola** (M. S. Cole & Hawksw.) Diederich Syn.: *Laeviomycetes lecanoricola* (Diederich 2003)
- ***lichenicola** Dyko & D. Hawksw.
- ***rinodinicola** Kocourk. & K. Knudsen (Knudsen & Kocourková 2009b)
- ***pertusariicola** (Nyl.) Diederich Erroneously listed here (Diederich 2003)

LICHENOMPHALIA Redhead, Lutzoni, Moncalvo & Vilgalys (Redhead et al. 2002)

- alpina** (Britzelm.) Redhead, Lutzoni, Moncalvo & Vilgalys Syns.: *Omphalina alpina*, *O. luteovitellina*, *Phytoconis luteovitellina*, *Botrydina luteovitellina* (Redhead et al. 2002)
- hudsoniana** (H. S. Jenn.) Redhead, Lutzoni, Moncalvo & Vilgalys Syns.: *Omphalina hudsoniana*, *Botrydina viridis*, *Coriscium viride*, *Phytoconis viridis* (Redhead et al. 2002)
- oreades** (Singer) Voitek, Thorn & I. Saar (Lücking et al. 2017b)
- umbellifera** (L. : Fr.) Redhead, Lutzoni, Moncalvo & Vilgalys Syns.: *Omphalina umbellifera*, *O. ericetorum*, *Phytoconis ericetorum*, *Botrydina botryoides*, *B. vulgaris* (Redhead et al. 2002)
- velutina** (Quél.) Redhead, Lutzoni, Moncalvo & Vilgalys Syns.: *Omphalina velutina*, *Phytoconis velutina*, *Botrydina velutina* (Redhead et al. 2002)

LICHENOPELTELLA Höhn.

- ***arctomiae** Pérez-Ortega & T. Sprib. (Pérez-Ortega & Spribille 2009b)
- ***biatorae** Pérez-Ortega & T. Sprib. (Pérez-Ortega & Spribille 2009b)
- ***cladoniarum** E. S. Hansen & Alstrup (Zhurbenko & Pino-Bodas 2017)
- ***heterodermiicola** M. S. Cole & D. Hawksw. (Cole & Hawksworth 2002)
- ***leprosulae** Pérez-Ortega & T. Sprib. (Pérez-Ortega & Spribille 2009b)
- ***peltigericola** (D. Hawksw.) R. Sant. (Alstrup & Cole 1998)
- ***santessonii** (P. M. Kirk & Spooner) R. Sant. (Alstrup & Cole 1998)
- ***stereocaulorum** Zhurb. (Zhurbenko 2010)
- ***thamnoliae** R. Sant. Erroneously listed here; reported only from South America (Diederich 2003)

LICHENOPUCCINIA D. Hawksw. & Hafellner

- ***poeltii** D. Hawksw. & Hafellner (Diederich 2003)

LICHENOSTICTA Zopf

- ***alcicornaria** (Lindsay) D. Hawksw.

LICHENOSTIGMA Hafellner

- ***alpinum** (R. Sant., Alstrup & D. Hawksw.) Ertz & Diederich Syn.: *Phaeosporobolus alpinus* (Ertz et al. 2014)
- ***ampla** Calat. & Hafellner (Kocourková & Knudsen 2008)
- ***anatolica** Halici & Kocakaya (Lendemer et al. 2009b)
- ***bolacinae** Nav.-Ros., Calat. & Hafellner (Kocourková & Knudsen 2008)
- ***chlaroterae** (F. Berger & Brackel) Ertz & Diederich (Ertz et al. 2014)
- ***cosmopolites** Hafellner & Calatayud (Hafellner & Calatayud 1999)
- ***dimelaenae** Calat. & Hafellner (Calatayud et al. 2004)
- ***elongata** Nav.-Ros. & Hafellner (Navarro-Rosines & Hafellner 1996)
- ***fellhanerae** (R. C. Harris & Lendemer) Ertz & Diederich Syn.: *Phaeosporobolus fellhanerae* (Ertz et al. 2014)
- ***maureri** Hafellner (Esslinger & Egan 1995) Syns: *Abrothallus usneae* auct. non Rabenh., *Phaeosporobolus usneae* (Ertz et al. 2014)
- ***radicans** Calatayud & Barreno (Knudsen & Kocourková 2008)
- ***rugosa** Thor
- ***saxicola** K. Knudsen & Kocourk. (Knudsen & Kocourková 2010d)
- ***semiimmersa** Hafellner (Hafellner 1999)
- ***subradians** Hafellner, Calatayud & Nav.-Ros. (Calatayud et al. 2002)

LICHENOTHELIA D. Hawksw.

- #**arida** Muggia, Kocourk. & K. Knudsen (Muggia et al. 2015)
- #**calcareae** Henssen
- #**convexa** Henssen
- #**intermixta** Henssen
- #**metzleri** (J. Lahm) D. Hawksw. Syn.: *Microthelia metzleri*
- #**renobalesiana** D. Hawksw. & V. Atienza (Kocourková & Knudsen 2009d)
- #**scopularia** (Nyl.) D. Hawksw. Syns.: *Microthelia aterrima*, *Rinodina aterrima*
- #**tenuissima** Henssen
- #**umbrophila** Muggia, Kocourk. & K. Knudsen (Muggia et al. 2015)

LICHENOTHRIX Henssen = **PYRENOTHRIX**

- riddlei** Henssen = *Pyrenothrix nigra*

LICHINA C. Agardh

- confinis** (O. F. Müller) C. Agardh
- willei** (Tuck.) Henssen

LICHINELLA Nyl.

- americana** Henssen
- cribellifera** (Nyl.) P. P. Moreno & Egea Syn.: *Gonohymenia cribellifera*, *Rechingeria cribellifera*
- flexa** Henssen, Büdel & T. H. Nash (Schultz 2005)
- granulosa** M. Schultz (Schultz 2005)
- intermedia** Henssen (Schultz 2005)
- iodopulchra** (Croz.) P. P. Moreno & Egea (Schultz 2005)
- melamphylla** (Tuck.) Essl. Syns.: *Gonohymenia melamphylla*, *Pannaria melamphylla*
- minnesotensis** (Fink) Essl. Syns.: *Forsellia minnesotensis*, *Gonohymenia minnesotensis*
- myriospora** (Zahlbr.) P. P. Moreno & Egea (Schultz 2005)
- nigritella** (Lettau) P. P. Moreno & Egea Syn.: *Gonohymenia nigritella*, *Thyrea nigritella*
- robustoides** Henssen, Büdel & T.H. Nash (Schultz 2005)
- sinaica** (Marton & Galun) P. P. Moreno & Egea (Schultz 2005)
- stipatula** Nyl.

LICHINODIUM Nyl.

- ahlneri** Henssen (Spribille et al. 2010)
- canadense** Henssen
- saxicola** Henssen
- sirosiphoideum** Nyl.

LIGNOSCRIPTA B. D. Ryan

- atroalba** B. D. Ryan & T. H. Nash (Ryan 2004a)

LITHOGRAPHIA Nyl.

- tesserata** (DC.) Nyl.

LITHOTHELIUM Müll. Arg.

- hyalosporum** (Nyl.) Aptroot Syn.: *Arthopyrenia hyalospora*, *Plagiocarpa hyalospora*, *Pleurotrema solivagum*
- illotum** (Nyl.) Aptroot Syn.: *Plagiocarpa illota*, *P. langloisii*
- macrosporum** (R. C. Harris) Aptroot Syn.: *Plagiocarpa macrospora*
- microsporum** R. C. Harris (Harris 1995a)
- phaeosporum** (R. C. Harris) Aptroot Syn.: *Plagiocarpa phaeosporum*
- septemseptatum** (R. C. Harris) Aptroot Syn.: *Plagiocarpa septemseptata*

LLIMONAEA Egea & Torrente

californica (Tuck.) Sparrius (Sparrius 2004b) = Schizopelte crustosa (Ertz & Tehler 2011)
cerebriformis (Egea & Torrente) Sparrius (Sparrius 2004b) = Sparria cerebriformis (Ertz & Tehler 2011)

LLIMONIELLA Hafellner & Nav.-Ros.

- ***acarosporicola** (Kocourk. & K. Knudsen) Diederich & Ertz Syn.: Gelatinopsis acarosporicola (Diederich et al. 2010)
- ***catapyrenii** Zhurb., Kukwa & Flakus (Zhurbenko 2013)
- ***cinnabarinae** Pérez-Ortega, Etayo & T. Sprib. (Pérez-Ortega et al. 2011)
- ***pertusariae** Diederich & Etayo (Diederich & Etayo 2000)
- ***phaeophysciae** Diederich, Ertz & Etayo (Diederich et al. 2010)
- ***pyrenulae** Diederich & Etayo (Diederich & Etayo 2000)
- *neglecta (Vainio) Triebel & Rambold = Rhymbocarpus neglectus

LOBARIA (Schreber) Hoffm.

- amplissima** (Scop.) Forssell (Tønsberg & Goward 2001) Syn.: Sticta amplissima, S. glomulifera
- anomala** (Brodo & Ahti) T. Sprib. & McCune Syns.: Anomalobaria anomala, Pseudocyphellaria anomala (McCune et al. 2014b)
- anthraspis** (Ach.) T. Sprib. & McCune Syns.: Anomalobaria anthraspis, Pseudocyphellaria anthraspis, Sticta anthraspis (McCune et al. 2014b)
- hallii** (Tuck.) Zahlbr. Syn.: Sticta hallii
- kurokawae** Yoshim.
- linita** (Ach.) Rabenh. Syn.: Sticta linita
- oregana** (Tuck.) Müll. Arg. Syn.: Sticta oregana
- pseudopulmonaria** Gyelnik
- pulmonaria** (L.) Hoffm. Syn.: Sticta pulmonaria
- quercizans** Michaux Syn.: Sticta quercizans
- ravenelii** (Tuck.) Yoshim. Syn.: Sticta erosa
- retigera** (Bory) Trevisan
- scrobiculata** (Scop.) DC. Syn.: Sticta verrucosa
- silvae-veteris** (Goward & Goffinet) Goward & Goffinet Syn.: Nephroma silvae-veteris (Goffinet & Goward 1998)
- tenuis** Vainio
- erosa (Eschw.) Nyl. = L. ravenelii
- isidiosa (Müll. Arg.) Vainio Not in North America.
- laetevirens (Lightf.) Zahlbr. = L. virens (With.) J. R. Laundon, but not known from North America
- lobulifera B. J. Moore = L. tenuis
- verrucosa (Hudson) Hoffm. = L. scrobiculata

LOBOTHALLIA (Clauzade & Cl. Roux) Hafellner

- alphoplaca** (Wahlenb.) Hafellner Syns.: Aspicilia alphoplaca, Lecanora alphoplaca, Lecanora thamnoplaca
- melanaspis** (Ach.) Hafellner Syn.: Aspicilia melanaspis, Lecanora melanaspis
- praeradiosa** (Nyl.) Hafellner Syn.: Aspicilia praeradiosa, Lecanora praeradiosa
- radiosa** (Hoffm.) Hafellner Syn.: Aspicilia radiosa, Lecanora radiosa, L. circinata

LOPADIOPSIS Vainio = **GYALECTIDIUM**

- floridana Zahlbr. = Asterothyrium rotuliforme

LOPADIUM Körber

- augustini** (Tuck.) Zahlbr.
- coralloideum** (Nyl.) Lyngé
- disciforme** (Flotow) Kullhem
- dodgei** Herre
- pezizoideum** (Ach.) Körber
- alpinum (Körber) R. Sant. = Schadonia alpina

domingense (Pers.) Fink = *Letrouitia domingensis*
fecundum Th. Fr. = *Schadonia fecunda*
fuscum Müll. Arg. = *Calopadia fusca*
fuscoluteum (Dickson) Mudd = *Brigantiaea fuscolutea*
gemellum (Anzi) Stizenb. = *Schadonia alpina*
leucoxanthum (Sprengel) Zahlbr. = *Brigantiaea leucoxantha*
puiggarii (Müll. Arg.) Zahlbr. = *Calopadia puiggarii*
phyllocharis (Mont.) Fink = *Tapellaria epiphylla*
vulpinum (Tuck.) Zahlbr. = *Letrouitia vulpina*

LOPEZARIA Kalb & Hafellner (Kalb 1990) = MEGALARIA Hafellner (Fryday & Lendemer 2010)
versicolor (Fée) Kalb & Hafellner (Kalb 1990) = *Megalaria versicolor*

LOXOSPORA A. Massal.

assateaguensis Lendemer (Lendemer 2013c)
cismonica (Beltr.) Hafellner Syn.: *Haematomma cismonicum*
confusa Lendemer (Lendemer 2013c)
elatina (Ach.) A. Massal. Syn.: *Haematomma elatinum*
ochrophaea (Tuck.) R. C. Harris Syn.: *Haematomma ochrophaeum*
pustulata (Brodo & W. L. Culb.) R. C. Harris = *Lepra pustulata*

LOXOSPOROPSIS Henssen

corallifera Brodo, Henssen & Imshaug

MACENTINA Vězda

dictyospora Orange (Will-Wolf 1998) = *Psoroglaena dictyospora* (Harada 2003)

MALCOLMIELLA Vězda

granifera (Ach.) Kalb & Lücking (Lendemer & Knudsen 2007) = *Malmidea granifera*

MALMIDEA Kalb, Rivas Plata & Lumbsch (Lücking et al. 2011b)

cineracea Breuss & Lücking (Seavey et al. 2017)
flavopustulosa (M. Cáceres & Lücking) M. Cáceres & Kalb (Seavey & Seavey 2014a)
floridensis (Nyl.) M. Cáceres, Aptroot & Lücking Syn.: *Lecidea floridensis* (Cáceres et al. 2017)
furfurosa (Tuck. ex Nyl.) Kalb & Lücking Syn.: *Lecidea furfurosa* (Lücking et al. 2011b)
fuscella (Müll. Arg.) Kalb & Lücking (Lücking et al. 2011b)
granifera (Ach.) Kalb, Rivas Plata & Lumbsch Syn.: *Lecanora granifera*, *Malcolmiella granifera* (Lücking et al. 2011b)
gyalectoides (Vainio) Kalb & Lücking (Lücking et al. 2011b)
leptoloma (Müll. Arg.) Kalb & Lücking (Lücking et al. 2011b)
piperis (Sprengel) Kalb, Rivas Plata & Lumbsch (Lücking et al. 2011b)
rhodopis (Tuck.) Kalb, Rivas Plata & Lumbsch (Lücking et al. 2011b)
variabilis Kalb (Lücking et al. 2011b)
vinosa (Eschw.) Kalb, Rivas Plata & Lumbsch (Lücking et al. 2011b)

MARCHANDIOBASIDIUM Diederich & Schultheis (Diederich & Lawrey 2007) = **ERYTHRICIUM**

*aurantiacum (Lasch) Diederich & Schultheis = *Erythrimum aurantiacum* (Hawksworth & Helcini 2015)

MARCHANDIOMYCES Diederich & D. Hawksw.

***buckii** Diederich & Lawrey (Diederich & Lawrey 2007)
***corallinus** (Roberge) Diederich & D. Hawksw. Syn.: *Illosporium corallinum*
#**lignicola** Lawrey & Diederich (DePriest et al. 2005)

MARONEA A. Massal.

constans (Nyl.) Hepp Questionable for N.Am. (Harris 2006b)
polyphaea H. Magn.

carolinae H. Magn. = *M. polyphaea* (Harris 2006b)
porinoidea Zahlbr. = *Ramonia valenzueliana*

MASONHALEA Kärnefelt

inermis (Nyl.) Lumbsch, M. Nelsen & A. Thell Syns.: *Cetraria inermis*, *Tuckermannopsis inermis* (Nelsen et al. 2013)
richardsonii (Hooker) Kärnefelt Syn.: *Cetraria richardsonii*

MASSALONGIA Körber

carnosa (Dickson) Körber
microphylliza (Nyl. ex Hasse) Henssen Syns.: *Placynthium dubium*, *P. microphyllizum*

MASSARINA Sacc.

staphyleae (Petr.) Aptroot = *Pseudopyrenula staphyleae*

MASTODIA Hooker f. & Harvey

tessellata (Hooker f. & Harvey) Hooker f. & Harvey Syns.: *Kohlmeyera complicatula*, *Turgidosculum complicatulum* (Kohlmeyer et al. 2004)

MAZOSIA A. Massal.

carnea (Eckfeldt) Aptroot & M. Cáceres (Aptroot et al. 2014) Syns.: *Enterographa carnea*, *Ocellularia carnea*, *Thelotrema carneum*
viridescens (Fée) Aptroot & M. Cáceres (Seavey et al. 2017) Syns.: *Platygrapha ocellata*, *Schismatomma ocellatum*
ocellata (Nyl.) R. C. Harris = *M. viridescens* (Tehler 1993, Aptroot et al. 2014)

MEDUSULINA Müll. Arg.

nitida (Eschw.) Müll. Arg. Syn.: *Graphis nitida*
texana Müll. Arg.

MEGALARIA Hafellner

albocincta (Degel.) Tønsberg (Ekman & Tønsberg 1996) Syns.: *Catillaria albocincta*, *Catillochroma albocinctum* (Fryday & Lendemer 2010)
allenae Lendemer & McMullin (McMullin & Lendemer 2016)
alligatorensis Lendemer (Lendemer et al. 2016c)
beechingii Lendemer (Lendemer 2007b)
brodoana S. Ekman & Tønsberg (Ekman & Tønsberg 1996)
columbiana (G. Merr.) S. Ekman (Ekman & Tønsberg 1996) *Catillaria columbiana*
grossa (Pers. ex Nyl.) Hafellner Syns.: *Catillaria grossa*, *Catinaria grossa*, *C. leucoplaca* auct.
jemtlandica (Th. Fr. & Almq.) Fryday Syn.: *Catillaria jemtlandica*, *Lecidea sublimosa* (Fryday 2004a)
laureri (Hepp ex Th. Fr.) Hafellner (Ekman & Tønsberg 1996) Syns.: *Catillaria laureri*, *Catinaria laureri*
leptocheila (Tuck.) Fryday & Lendemer Syns.: *Catillaria leptocheila*, *Catillochroma leptocheilum* (Fryday & Lendemer 2010)
pannosa (Zahlbr.) Fryday & Lendemer (Fryday & Lendemer 2010)
pulverea (Borrer) Hafellner & E. Schreiner Syn.: *Catillaria pulverea*
versicolor (Flotow) Fryday & Lendemer Syn.: *Catillochroma versicolor* (Fryday & Lendemer 2010)

MEGALOSPORA Meyen

pachycheila (Tuck.) Sipman Syn.: *Bombyliospora pachycheila*, *Heterothecium pachycheilum*
porphyritis (Tuck.) R. C. Harris Syn.: *Bombyliospora porphyritis*
tuberculosa (Fée) Sipman Syn.: *Bombyliospora tuberculosa*, *Heterothecium tuberculosum*
sanguinaria (L.) A. Massal. = *Mycoblastus sanguinaria*
versicolor (Fée) Zahlbr. = *Megalaria versicolor*

MEGASPORA (Clauz. & Cl. Roux) Hafellner & V. Wirth

verrucosa (Ach.) Hafellner & V. Wirth Syns.: *Pachyospora verrucosa*, *P. mutabilis*, *Lecanora verrucosa*, *L. mutabilis* (Ach.) Nyl.non Sommerf., *L. urceolaria*, *Pertusaria freyi*

MELANARIA Erichsen = PERTUSARIA
macounii I. M. Lamb = *Pertusaria macounii*

MELANELIA Essl.

agnata (Nyl.) A. Thell Syn.: *Cetraria agnata*
culbersonii (Hale) A. Thell Syn.: *Cetraria culbersonii*
hepatizon (Ach.) A. Thell Syn.: *Cetraria hepatizon*, *C. polyschiza*
stygia (L.) Essl. Syn.: *Parmelia stygia*
albertana (Ahti) Essl. = *Melanelixia albertana*
commixta (Nyl.) A. Thell = *Cetrariella commixta*
disjuncta (Erichsen) Essl. = *Montanelia disjuncta*
elegantula (Zahlbr.) Essl. = *Melanohalea elegantula*
exasperata (De Not.) Essl. = *Melanohalea exasperata*
exasperatula (Nyl.) Essl. = *Melanohalea exasperatula*
fuliginosa (Fr. ex Duby) Essl. = *Melanelixia fuliginosa*, but apparently absent from North America
glabra (Schaerer) Essl. North American reports are *Melanelixia californica*
glabratula (Lamy) Essl. = *Melanelixia glabratula*
glabroides (Essl.) Essl. = *Melanelixia glabroides*
granulosa (Lynge) Essl. = *Montanelia disjuncta*
halei (Ahti) Essl. = *Melanohalea halei*
incolorata (Parrique) Essl. = *Melanohalea elegantula*
infumata (Nyl.) Essl. = *Melanohalea infumata*
multispora (A. Schneider) Essl. = *Melanohalea multispora*
olivacea (L.) Essl. = *Melanohalea olivacea*
olivaceoides (Krog) Essl. = *Melanohalea olivaceoides*
panniformis (Nyl.) Essl. = *Montanelia panniformis*
septentrionalis (Lynge) Essl. = *Melanohalea septentrionalis*
sorediata (Ach.) Goward & Ahti = *Montanelia sorediata*
sorediosa (Almb.) Essl. = *Montanelia sorediata*
subargentifera (Nyl.) Essl. = *Melanelixia subargentifera*
subaurifera (Nyl.) Essl. = *Melanelixia subaurifera*
subelegantula (Essl.) Essl. = *Melanohalea subelegantula*
subolivacea (Nyl.) Essl. = *Melanohalea subolivacea*
substygia (Räsänen) Essl. = *Montanelia tominii*, but North American reports are *M. saximontana* or *M. secwepemc*
tominii (Oxner) Essl. = *Montanelia tominii*, but North American reports are *M. saximontana* or *M. secwepemc*
trabeculata (Ahti) Essl. = *Melanohalea trabeculata*
villosella (Essl.) Essl. (Esslinger 2002c) = *Melanelixia villosella*

MELANELIXIA O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch (Blanco et al. 2004a)

ahtii S. Leavitt, Essl., Divakar, A. Crespo & Lumbsch (Leavitt et al. 2016)
albertana (Ahti) O. Blanco et al. Syns.: *Melanelia albertana*, *Parmelia albertana*
californica A. Crespo & Divakar (Divakar et al. 2010)
glabratula (Lamy) Sandler & Arup Syns.: *Melanelia glabratula*, *Parmelia glabratula*
glabroides (Essl.) O. Blanco et al. Syns.: *Melanelia glabroides*, *Parmelia glabroides*
robertsoniorum S. Leavitt, Essl., Divakar, A. Crespo & Lumbsch (Leavitt et al. 2016)
subargentifera (Nyl.) O. Blanco et al. Syns.: *Melanelia subargentifera*, *Parmelia subargentifera*, *P. conspurcata*
subaurifera (Nyl.) O. Blanco et al. Syns.: *Melanelia subaurifera*, *Parmelia subaurifera*
villosella (Essl.) O. Blanco et al. Syns.: *Melanelia villosella*, *Parmelia villosella*
fuliginosa (Fr. ex Duby) O. Blanco et al. North American reports are misidentifications of *M. glabratula* (Leavitt et al. 2012)

glabra (Schaerer) O. Blanco et al. North American reports are *M. californica*

MELANOGRAPHIA Müll. Arg. (Ertz & Diederich 2015)

***tribulodes** (Tuck.) Müll. Arg. Syn.: *Melaspilea tribulodes*, *Opegrapha tribulodes* (Ertz & Diederich 2015)

MELANOHALEA O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch (Blanco et al. 2004a)

beringiana S. Leavitt, Essl., Divakar, A. Crespo & Lumbsch (Leavitt et al. 2016)

clari S. Leavitt, Essl., Divakar, A. Crespo & Lumbsch (Leavitt et al. 2016)

columbiana S. Leavitt, Essl., Divakar, A. Crespo & Lumbsch (Leavitt et al. 2016)

elegantula (Zahlbr.) O. Blanco et al. Syns.: *Melanelia elegantula*, *M. incolorata*, *Parmelia elegantula*

exasperata (De Not.) O. Blanco et al. Syns.: *Melanelia exasperata*, *Parmelia exasperata*, *P. aspera*, *P. aspidota*

exasperatula (Nyl.) O. Blanco et al. Syns.: *Melanelia exasperatula*, *Parmelia exasperatula*

halei (Ahti) O. Blanco et al. Syns.: *Melanelia halei*, *Parmelia halei*

infumata (Nyl.) O. Blanco et al. Syns.: *Melanelia infumata*, *Parmelia infumata*

multispora (A. Schneider) O. Blanco et al. Syns.: *Melanelia multispora*, *Parmelia multispora*

olivacea (L.) O. Blanco et al. Syns.: *Melanelia olivacea*, *Parmelia olivacea*

olivaceoides (Krog) O. Blanco et al. Syns.: *Melanelia olivaceoides*, *Parmelia olivaceoides*

septentrionalis (Lynge) O. Blanco et al. Syns.: *Melanelia septentrionalis*, *Parmelia septentrionalis*

subelegantula (Essl.) O. Blanco et al. Syns.: *Melanelia subelegantula*, *Parmelia subelegantula*

subolivacea (Nyl.) O. Blanco et al. Syns.: *Melanelia subolivacea*, *Parmelia subolivacea*

tahltan S. Leavitt, Essl., Divakar, A. Crespo & Lumbsch (Leavitt et al. 2016)

trabeculata (Ahti) O. Blanco et al. Syns.: *Melanelia trabeculata*, *Parmelia trabeculata*

MELANOLECIA Hertel

transitoria (Arnold) Hertel ex Poelt

jurana (Schaerer) Hertel = *Farnoldia jurana*

micropsis (A. Massal.) Hertel = *Farnoldia micropsis*

MELANOMMA Nitschke ex Fuckel

⁺**oxysporum** (Zahlbr.) D. Hawksw. Syn.: *Microthelia oxyspora*

MELANOPHLOEA P. James & Vězda

americana K. Knudsen & Lendemer (Knudsen et al. 2011b) = *Trimmatothelopsis americana* (Knudsen & Lendemer 2016) Syn.: *Thelenella americana* (Knudsen & Kocourová 2013)

MELANOTHECA Körber = **PYRENULA**

achariana Fée = *Pyrenula anomala*

aggregata (Fée) Müll. Arg. = not in North America

anomala (Ach.) A. Massal. = *Pyrenula anomala*

cinerata Zahlbr. = *Pyrenula sexlocularis*

concatervans (Nyl.) Zahlbr. = *Pyrenula sexlocularis*

cruenta (Mont.) Müll. Arg. = *Pyrenula cruenta*

esenbeckiana Fée = *Tomasellia esenbeckiana*, but a misidentification for North America

subincruenta (Nyl.) Zahlbr. = *Pyrenula cruenta*

wrightii Müll. Arg. = misidentification for North American records

MELANOTOPELIA Lumbsch & Mangold (Mangold et al. 2008)

toensbergii (Vězda & Kantvilas) Lumbsch & Mangold Syn.: *Topeliopsis toensbergii* (Mangold et al. 2008)

MELANOTREMA A. Frisch (Frisch 2006)

meiospermum (Nyl.) A. Frisch Syn.: *Ocellularia meiosperma*, *Phaeotrema meiospermum* (Frisch 2006)

platystomum (Mont.) Frisch (Seavey & Seavey 2014a)

MELASPILEA Nyl.

amota Nyl.

cinerascens (Willey) Fink Syn.: *Opegrapha cinerascens*

constrictella (Stirton) A. L. Sm.

***cupularis** Müll. Arg.

demissa (Tuck.) Zahlbr. Syn.: *Opegrapha demissa*

***epigena** Müll. Arg. (Esslinger & Egan 1995)

gemella (Eschw.) Nyl. (Esslinger & Tucker 2009)

interjecta (Leighton) A. L. Sm. (Villella et al. 2013)

maculosa (Fr.) Müll. Arg.

stellans Zahlbr.

urceolata (Fr.) Ertz & Diederich (Ertz & Diederich 2015)

arthonioides (Fée) Nyl. = *M. urceolata* (Ertz & Diederich 2015)

deformis (Schaerer) Nyl. = *Hazslinszkya gibberulosa*, but misidentifications for North America (Perlmutter et al. 2015)

difformis (Rabenh.) Nyl. = *Hazslinszkya gibberulosa* (Ertz & Diederich 2015)

gibberulosa (Ach.) Zwackh (Brodo 1967) = *Hazslinszkya gibberulosa* (Ertz & Diederich 2015)

lentiginosula (Nyl.) A. L. Sm. = misidentification for North America (Perlmutter et al. 2015)

mesophlebia (Nyl.) Müll. Arg. = *Opegrapha mesophlebia* (Perlmutter et al. 2015)

octomera Müll. Arg. = *Opegrapha astraea* (Perlmutter et al. 2015)

+*proximella* (Nyl.) Nyl. = *Melaspileella proximella* (Ertz & Diederich 2015)

**tribulodes* (Tuck.) Müll. Arg. = *Melanographa tribulodes* (Ertz & Diederich 2015)

MELASPILEELLA (P. Karsten) Vainio (Ertz & Diederich 2015)

+**proximella** (Nyl.) Ertz & Diederich Syn.: *Melaspilea proximella*

MENEGAZZIA A. Massal.

subsimilis (H. Magn.) R. Sant. (Bjerke 2003)

terebrata (Hoffm.) A. Massal. Syns.: *Parmelia pertusa*, *P. sipeana*

pertusa (Schränk) Stein = *M. terebrata*

MERISMATIUM Zopf

***coccisporum** (Norman) Vouaux

***decolorans** (Rehm ex Arnold) Triebel

***heterophractum** (Nyl.) Vouaux (Zhurbenko & Laursen 2003)

***nigritellum** (Nyl.) Vouaux (Zhurbenko & Dillman 2010)

***peregrinum** (Flotow) Triebel (Harris & Lendemer 2005)

METAMELANEA Henssen

melambola (Tuck.) Henssen Syns.: *Pyrenopsis melambola*, *Synalissa melambola*

umbonata Henssen (Fryday 2006)

METASPHAERIA Sacc.

**tartarina* (Nyl.) Keissler (Talbot et al. 2000) = *Sagediopsis campsteriana*

MICAREA Fr.

adnata Coppins (McCune 2017)

alabastrites (Nyl.) Coppins (Tønsberg & Coppins 2000)

anterior (Nyl.) Hedl. (McCune et al. 2014b)

assimilata (Nyl.) Coppins Syn.: *Lecidea assimilata*

botryoides (Nyl.) Coppins (McCune 1996)

byssacea (Th. Fr.) Czarnota, Guzew-Krzemińska & Coppins (Launis & Myllys 2014)

chlorosticta (Tuck.) R. C. Harris Syn.: *Bacidia chlorosticta*

cinerea (Schaerer) Hedl.

coppinsii Tønsberg (Fryday 2006)

deminuta Coppins (Fryday & Coppins 2007)
denigrata (Fr.) Hedl. Syn.: *Lecidea aniptiza*
elachista (Körber) Coppins & R. Sant.
endocyanea (Tuck. ex Willey) R. C. Harris Syn.: *Bacidia endocyanea*
globulosella (Nyl.) Coppins
hedlundii Coppins
incrassata Hedl.
leprosula (Th. Fr.) Coppins & A. Fletcher
lignaria (Ach.) Hedl. Syn.: *Bacidia lignaria*
lithinella (Nyl.) Hedl.
marginata Coppins & Muhr (Fryday 2006)
melaena (Nyl.) Hedl. Syn.: *Bacidia melaena*, *Bilimbia melaena*
micrococca (Körber) Gams ex Coppins (Fryday & Coppins 2007)
misella (Nyl.) Hedl. Syn.: *Lecidea misella*
myriocarpa V. Wirth & Vězda ex Coppins (Tønsberg 1999a)
neostipitata Coppins & P. May (Coppins & May 2001)
nigella Coppins (McCune 2017)
nitschkeana (J. Lahm ex Rabenh.) Harm.
paratropa (Nyl.) Alstrup (Alstrup et al. 1994)
peliocharpa (Anzi) Coppins & R. Sant. Syn.: *Bacidia trisepta*, *Bilimbia trisepta*
perparvula (Nyl.) Coppins & Printzen (Printzen 1995, Coppins 2008)
prasina Fr. Syn.: *Catillaria prasina*
prasinella (Jatta) I. M. Lamb (Spribille et al. 2010)
pycnidiophora Coppins & P. James
rhabdogena (Norman) Hedl. Syn.: *Lecidea punctella* (Printzen 1995)
subalpina Coppins & T. Sprib. (Coppins & Spribille 2004)
subviridescens (Nyl.) Hedl. (McCune 2017)
synotheoides (Nyl.) Coppins (Tønsberg & Coppins 2000)
ternaria (Nyl.) Vězda Syn.: *Lecidea suballinita*
turfosa (A. Massal.) Du Rietz
vulpinaris (Nyl.) Muhr
xanthonica Coppins & Tønsberg (Coppins & Tønsberg 2001)
bauschiana (Körber) V. Wirth & Vězda = *Brianaria bauschiana* (Ekman & Svensson 2014)
clavopycnidiata Brodo & Tønsberg = *Szczawinskia tsugae* (Aptroot et al. 1997)
crassipes (Th. Fr.) Coppins = *Helocarpon crassipes*
erratica (Körber) Hertel, Rambold & Pietschmann = *Leimonis erratica*
gelatinosa (Flörke) Brodo = *Trapeliopsis gelatinosa*
globularis "(Ach. ex Nyl.) Hedl." = *M. misella*
lutulata (Nyl.) Coppins = *Brianaria lutulata* (Ekman & Svensson 2014)
lynceola (Th. Fr.) Palice = misidentification for North America? (Coppins & Fryday 2006b)
melanobola (Nyl.) Coppins = misidentification for North America (Coppins & Fryday 2006b)
populina (Müll. Arg. ex Nyl.) R. A. Anderson & M. P. Carmer = *Lecidea populina*
subviolascens (H. Magn.) Coppins = *Micarea paratropa* (Alstrup et al. 1994)
sylvicola (Flotow) Vězda & V. Wirth = *Brianaria sylvicola* (Ekman & Svensson 2014)
trisepta (Hellbom) Wetmore = *M. peliocharpa*
tuberculata (Sommerf.) R. A. Anderson = *Brianaria tuberculata* (Ekman & Svensson 2014)
violacea (Crouan ex Nyl.) Hedl. = *M. peliocharpa*
viridescens (Schrader) Brodo = *Trapeliopsis viridescens*

MICAREOPSIS R. C. Harris & Lendemer (Lendemer et al. 2013)

irriguata R. C. Harris & Lendemer

MICROCALICIUM Vainio

⁺**ahlneri** Tibell

[#]**arenarium** (Hampe ex A. Massal.) Tibell Syn.: *Coniocybopsis arenaria*

^{*}**conversum** Tibell (Tibell & Ryan 2004)

- ***disseminatum** (Ach.) Vainio Syns.: *Mycocalicium disseminatum*, *Calicium disseminatum*
- ***subpedicellatum** (Schaerer) Tibell = *M. disseminatum*

MICROGLAENA Körber nom. illegit. = THELENELLA

- corrosa** (Körber) Arnold = *Protothelenella corrosa*
- hassei** Zahlbr. = *Thelenella hassei*
- inductula** (Nyl.) Servit = *Thelenella inductula*
- muscorum** (Fr.) Th. Fr. = *Thelenella muscorum*
- sordidula** Th. Fr. = *Thelenella sordidula*
- sphinctrinoides** (Nyl.) Lönnr. = *Protothelenella sphinctrinoides*
- subcorallina** Hasse = *Thelenella modesta*
- sychnogonoides** Zahlbr. = *Thelenella hassei*

MICROLYCHNUS A. Funk

- epicorticis** A. Funk = *Gyalideopsis epicorticis*

MICROPHIALE (Stizenb.) Zahlbr. = COENOGONIUM

- diluta** (Pers.) Zahlbr. (Fink 1935) = *Coenogonium pineti*
- lutea** (Dickson) Zahlbr. (Fink 1935) = *Coenogonium luteum*

MICROTHELIA Körber = ANISOMERIDUM

- #aterrima** (Kremp. ex Anzi) Zahlbr. = *Lichenothelia scopularia*
- hymnothora** (Ach.) Trevisan = *Granulopyrenis hymnothora*
- #inops** Degel. = *Kirschsteiniothelia aethiops*
- #metzleri** J. Lahm = *Lichenothelia metzleri*
- #micula** auct. non Flotow ex Körber = *Kirschsteiniothelia aethiops* for most North American records
- +oblongata** Müll. Arg. = *Mycomicrothelia wallrothii*
- +oxyspora** Zahlbr. = *Melanomma oxysporum*
- +thelena** (Ach.) Trevisan = *Mycomicrothelia thelena*, but not found in North America
- verruculosa** Anastasiou = identity uncertain
- +wallrothii** (Hepp) Rehm = *Mycomicrothelia wallrothii*
- #willeyana** Müll. Arg. = *Mycomicrothelia willeyana*

MINUTOEXCIPULA V. Atienza & D. Hawksw.

- ***mariana** V. Atienza (Diederich 2003)
- ***miniatoexcipula** R. C. Harris & Lendemer (Lendemer et al. 2016c)
- ***tuckerae** V. Atienza & D. Hawksw.

MIRIQUIDICA Hertel & Rambold (Hertel & Rambold 1987)

- atrofulva** (Sommerf.) A. J. Schwab & Rambold Syn.: *Lecidea atrofulva*
- deusta** (Stenh.) Hertel & Rambold Syn.: *Lecidea deustata*
- garovaglioii** (Schaerer) Hertel & Rambold Syns.: *Lecidea garovaglioii*, *L. aenea*
- griseoatra** (Flotow) Hertel & Rambold Syn.: (?) *Lecidea subplumbea*
- instrata** (Nyl.) Hertel & Rambold Syn.: *Lecidea instrata*
- intrudens** (H. Magn.) Hertel & Rambold Syn.: *Lecanora intrudens*
- leucophaea** (Flörke ex Rabenh.) Hertel & Rambold Syns.: *Lecidea leucophaea*, *L. marylandensis*
- leucophaeoides** (Nyl.) Hertel & Andreev Syn.: *Lecidea leucophaeoides* (Hertel & Andreev 2003)
- lulensis** (Hellbom) Hertel & Rambold Syns.: *Lecidea lulensis*, *L. circumnigrata* var. *reagens*
- nigroleprosa** (Vainio) Hertel & Rambold (Spribille et al. 2010)
- plumbeoatra** (Vainio) A. J. Schwab & Rambold Syn.: *Lecidea plumbeoatra*, *L. furva*, *L. humilis*
- pulvinatula** (Arnold) Hertel & Rambold Syn.: *Lecidea circumnigrata*
- pyncocarpa** (Körber) Andreev Syn.: *Lecidea marciensis*, *L. pyncocarpa*, *Lecidella pyncocarpa* (Coppins & Fryday 2006b)
- scotopholis** (Tuck.) B. D. Ryan & Timdal Syns.: *Lecanora scotopholis*, *Lecidea scotopholis*, *Psora scotopholis*, *Psorula scotopholis* (Nash et al. 2004a)
- subplumbea** (Anzi) Cl. Roux (McCune 2017, McMullin et al. 2017)

#**verrucariicola** (B. D. Ryan) K. Knudsen & Kocourk. Syns.: *Lecanora verrucariicola*, *Protoparmelia ryaniana* (Knudsen et al. 2015)
mexicana Rambold, Sipman & Hertel (Knudsen & Owe-Larson 2005) = *M. scotopholis* (Knudsen et al. 2008b, Lendemer & Knudsen 2008, Knudsen et al. 2015)

MOBERGIA H. Mayrhofer & Sheard

angelica (Stizenb.) H. Mayrhofer & Sheard Syns.: *Rinodina angelica*, *R. bolodes*, *R. dirinoides*, *Dimelaena angelica*

calculiformis (W. A. Weber) H. Mayrhofer & Sheard Syns.: *Rinodina calculiformis*, *R. platyloba*

MOELLEROPSIS Gyelnik

nebulosa (Hoffm.) Gyelnik subsp. **nebulosa** (Jørgensen 2002)

nebulosa (Hoffm.) Gyelnik subsp. **frullaniae** Maass (Jørgensen 2000a, Maass 1986)

MONOBLASTIA Riddle

borinquensis R. C. Harris (Harris 1995a)

buckii R. C. Harris

cypressi R. C. Harris (Harris 1995a)

palmicola Riddle (Seavey et al. 2017)

rappii Zahlbr.

MONOBLASTIOPSIS R. C. Harris & C. A. Morse

konzana R. C. Harris & C. A. Morse (Harris & Morse 2008)

nigrocortina R. C. Harris & C. A. Morse (Harris & Morse 2008)

MONODICTYS S. Hughes

***cellulosa** S. Hughes (Diederich 2003)

***fuliginosa** Etayo (Zhurbenko 2009b)

MONTANELIA Divakar, A. Crespo, Wedin & Essl. (Divakar et al. 2012)

disjuncta (Erichsen) Divakar, A. Crespo, Wedin & Essl. Syns.: *Melanelia disjuncta*, *Parmelia disjuncta*, *P. granulosa*, *P. denalii*

ocultipanniformis S. Leavitt, Essl., Divakar, A. Crespo & Lumbsch (Leavitt et al. 2016)

panniformis (Nyl.) Divakar, A. Crespo, Wedin & Essl. Syns.: *Melanelia panniformis*, *Parmelia panniformis*

saximontana (R. Anderson & W. Weber) S. Leavitt, Essl., Divakar, A. Crespo & Lumbsch (Leavitt et al. 2016) Syn.: *Parmelia saximontana*, *P. substygia* p.p.

secwepemc S. Leavitt, Essl., Divakar, A. Crespo & Lumbsch (Leavitt et al. 2016)

sorediata (Ach.) Divakar, A. Crespo, Wedin & Essl. Syns.: *Melanelia sorediata*, *M. sorediosa*, *Parmelia sorediata*, *P. sorediosa*

tominii (Oxner) Divakar, A. Crespo, Wedin & Essl. North American reports are *M. saximontana* or *M. secwepemc* Syns.: *Melanelia tominii*, *Parmelia saximontana*, *P. substygia*

MOSIGIA Fr. ex A. Massal. = **RIMULARIA**

gibbosa (Ach.) Fr. ex A. Massal. = *Rimularia gibbosa*

MUELLERELLA Hepp ex Müll. Arg.

***erratica** (A. Massal.) Hafellner & V. John Syn.: *M. pygmaea* v. *athallina* (Knudsen & Kocourková 2009b)

***hospitans** Stizenb. (Spribille et al. 2010)

***lecanactidis** Diederich & van den Boom (Diederich 2003)

***lichenicola** (Sommerf. ex Fr.) D. Hawksw.

***pygmaea** (Körber) D. Hawksw. Syn.: *Tichothecium pygmaeum*

***ventosicola** (Mudd) D. Hawksw.

**pygmaea* var. *athallina* (Müll. Arg.) Triebel = **M. erratica*

**pygmaea* var. *ventosicola* (Mudd) Triebel = **M. Ventosicola*

MULTICLAVULA R. H. Petersen**coronilla** (G. W. Martin) R. H. Petersen**corynoides** (Peck) R. H. Petersen**mucida** (Fr.) R. H. Petersen**sharpii** R. H. Petersen**vernalis** (Schwein.) R. H. Petersen**MYCOBILIMBIA** Rehm**berengeriana** (A. Massal.) Hafellner & V. Wirth Syn.: *Lecidea berengeriana***carneoalbida** (Müll. Arg.) S. Ekman & Printzen (Ekman 2004c) Syns.: *Bacidia carneoalbida*, *B. sphaeroides*, *Biatora carneoalbida*, *Bilimbia sphaeroides* auct.**epixanthoides** (Nyl.) Vitik., Ahti, Kuusinen, Lommi & T. Ulvinen (Hafellner & Türk 2001) Syns: *Biatora epixanthoides*, *Lecidea epixanthoides***fissuriseda** (Poelt) Poelt & Hafellner Syn.: *Lecidea fissuriseda***pilularis** (Körber) Hafellner & Türk Syns.: *Bacidia sphaeroides*, *Biatora sphaeroides*, *Bilimbia sphaeroides*, *Catillaria sphaeroides* (Hafellner & Türk 2001)**tetramera** (De Not.) Vitik., Ahti, Kuusinen, Lommi & T. Ulvinen ex Hafellner & Türk (Hafellner & Türk 2001) Syn.: *Bacidia fusca**accedens* (Arnold) V. Wirth ex Hafellner = *Bilimbia accedens**austrocalifornica* (Zahlbr.) Knudsen (Knudsen 2005b) = *Carbonea latypizodes**fusca* (A. Massal.) Hafellner & V. Wirth = *M. tetramera**hypnorum* (Lib.) Kalb & Hafellner = *Bryobilimbia hypnorum**lobulata* (Sommerf.) Hafellner = *Bilimbia lobulata**lurida* (Ach.) Hafellner & Türk (Hafellner & Türk 2001) = *Romjularia lurida**microcarpa* (Th. Fr.) W. Brunnbauer = *Bilimbia microcarpa**obscurata* (Sommerf.) Rehm = *M. tetramera**sabuletorum* (Schreber) Hafellner = *Bilimbia sabuletorum***MYCOBLASTUS** Norman**affinis** (Schaerer) T. Schauer**alpinus** (Fr.) Th. Fr. Ex Hellbom**caesius** (Coppins & P. James) Tønsberg Syn.: *Haematomma caesium***glabrescens** (Nyl.) Zahlbr. (Kantvilas 2009)**sanguinarioides** Kantvilas (Spribille et al. 2011b)**sanguinarius** (L.) Norman Syn.: *Megalospora sanguinaria**fucatus* (Stirton) Zahlbr. = *Violella fucata* (Spribille et al. 2011a)*marginatus* Degel. = *M. affinis* (Spribille & Tønsberg 2007)*melinus* (Kremp. ex Nyl.) Hellbom = *M. affinis**tornoënsis* (Nyl.) R. A. Anderson = *Japewia tornoënsis***MYCOCALICIUM** Vainio⁺**albonigrum** (Nyl.) Fink Syn.: *Calicium albonigrum*⁺**americanum** (R. Sant.) Tibell⁺**calicioides** (Nádv.) Tibell Syn.: *Sphinctrinella calicioides***fuscipes** (Tuck.) Fink Syn.: *Calicium fuscipes***ravenelii** (Tuck.) Fink Syn.: *Calicium ravenelii***reticulatum** Nádv.⁺**sequoiae** Bonar⁺**subtile** (Pers.) Szatala Syns.: *M. parietinum*, *Calicium subtile***victoriae** (C. Knight & F. Wilson) Nádv. (Nash et al. 1998; Tibell 2007)⁺*compressulum* Nyl. ex Szatala = *Phaeocalicium compressulum*^{*}*disseminatum* (Ach.) Fink = *Microcalicium disseminatum*^{*}*microcephalum* (Sm.) Fink = *Sphinctrina anglica*⁺*parietinum* (Ach. ex Schaerer) D. Hawksw. = *M. subtile*[#]*pusiolum* (Ach.) Räsänen = *Chaenothecopsis pusiola*

⁺rappii Nád. = Chaenothecopsis rappii (Harris 1995a)

⁺savonicum Räsänen = Chaenothecopsis savonica

MYCOGLAENA Höhnelt

⁺**acuminans** (Nyl.) Vainio

⁺**alni** (Dearness & House) Barr

⁺**canadensis** (Ellis & Everh.) Barr

⁺**elegans** (Berk. & Curtis) Höhnelt

⁺**meridionalis** (Zahlbr.) Szatala

⁺**myricae** (Nyl.) R. C. Harris

⁺**quercicola** R. C. Harris

⁺**subcoerulescens** (Nyl.) Höhnelt

MYCOMICROTHELIA Keissler

apposita (Nyl.) D. Hawksw. (Seavey et al. 2017)

#**captiosa** (Kremp.) D. Hawksw.

decipiens (Müll. Arg.) R. C. Harris (Seavey et al. 2017)

⁺**dothideaspora** (Cook & Harkn.) D. Hawksw.

#**hemisphaerica** (Müll. Arg.) D. Hawksw.

⁺**inaequalis** (Fabre) D. Hawksw.

#**subfallens** (Müll. Arg.) D. Hawksw.

⁺**wallrothii** (Hepp) D. Hawksw. Syn.: Microthelia wallrothii, M. oblongata

#**willeyana** (Müll. Arg.) D. Hawksw. Syn.: Microthelia willeyana

thelena (Ach.) D. Hawksw. Syn.: Microthelia thelena, but not found in North America

MYCOPORELLUM Müll. Arg.

californicum Zahlbr. = Mycoporum californicum (Harris 1995a)

difforme (Minks) Fink = Mycoporum lacteum (Harris 1995a)

hassei Zahlbr. = Mycoporum lacteum (Harris 1995a)

sparsellum (Nyl.) Müll. Arg. = Mycoporum sparsellum (Harris 1995a)

MYCOPORUM Flotow ex Nyl.

acervatum R. C. Harris (Harris 1995a)

antecellens (Nyl.) R. C. Harris Syn.: Arthopyrenia antecellens (Harris 1995a)

biseptatum Lendemer & R. C. Harris Syn.: Arthonia biseptata (Lendemer & Harris 2014c, Lendemer & Harris 2015a)

buckii R. C. Harris (Harris 1995a)

californicum (Zahlbr.) R. C. Harris (Harris 1995a) Syns.: Tomasellia californica, Mycoporellum californicum

compositum (A. Massal.) R. C. Harris Syns.: Dermatina "pyrenocarpa", Arthothelium lichenale

eschweileri (Müll. Arg.) R. C. Harris (Harris 1995a) Syn.: Tomasellia eschweileri

⁺**hippocastani** (DC) Coppins (Aptroot 2002c)

lacteum (Ach.) R. C. Harris (Harris 1995a) Syn.: Mycoporellum difforme, M. hassei, Tomasellia lactaea

mycoporoides (Müll. Arg.) R. C. Harris (Harris 1995a) Syn.: Arthopyrenia mycoporoides

pyncocarpoides Müll. Arg.

sparsellum Nyl. (Harris 1995a) Syns.: Tomasellia sparsella, Mycoporellum sparsellum

uniloculatum R. C. Harris (Harris 1995a)

ohiense Nyl. ex Fink = M. compositum

pyncocarpum Nyl. = M. compositum

MYELOCHROA (Asahina) Elix & Hale

aurulenta (Tuck.) Elix & Hale Syns.: Parmelina aurulenta, Parmelia aurulenta, P. silvestris

galbina (Ach.) Elix & Hale Syns.: Parmelina galbina, Parmelia galbina, P. subquercifolia, P. sulphurosa

metarevoluta (Asahina) Elix & Hale Syns.: *Parmelina metarevoluta*, *Parmelia metarevoluta*
obsessa (Ach.) Elix & Hale Syns.: *Parmelina obsessa*, *Parmelia obsessa*, *P. finkii*

MYOCHROIDEA Printzen, T. Sprib. & Tønsberg (Printzen et al. 2008)

leprosula (Arnold) Printzen, T. Sprib. & Tønsberg

minutula Printzen, T. Sprib. & Tønsberg

porphyrospoda (Anzi) Printzen, T. Sprib. & Tønsberg Syns.: *Biatora porphyrospoda*, *Lecidea porphyrospoda*

rufofusca (Anzi) Printzen, T. Sprib. & Tønsberg Syn. : *Biatora rufofusca*, *Lecidea rufofusca*

MYRIOLECIS Clem.

agardhiana (Ach.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora agardhiana* (Zhao et al. 2016)

albescens (Hoffm.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora albescens*, *L. galactina* (Zhao et al. 2016)

andrewii (B. de Lesd.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora andrewii* (Zhao et al. 2016)

carlottiana (Lewis & Šliwa) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora carlottiana* (Zhao et al. 2016)

contractula (Nyl.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora contractula* (Zhao et al. 2016)

crenulata (Hooker) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora crenulata* (Zhao et al. 2016)

dispersa (Pers.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora dispersa* (Zhao et al. 2016)

flowersiana (H. Magn.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora flowersiana* (Zhao et al. 2016)

fugiens (Nyl.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora fugiens* (Zhao et al. 2016)

hagenii (Ach.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora hagenii* (Zhao et al. 2016)

invadens (H. Magn.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora invadens* (Zhao et al. 2016)

juniperina (Šliwa) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora juniperina* (Zhao et al. 2016)

percrenata (H. Magn.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora percrenata* (Zhao et al. 2016)

perpruinosa (Frøberg) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora perpruinosa* (Zhao et al. 2016)

persimilis (Th. Fr.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora persimilis* (Zhao et al. 2016)

salina (H. Magn.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora salina* (Zhao et al. 2016)

sambuci (Pers.) Clem. Syn.: *Lecanora sambuci* (Zhao et al. 2016)

schofieldii (Brodo) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora schofieldii* (Zhao et al. 2016)

semipallida (H. Magn.) Šliwa, Zhao Xin & Lumbsch Syns.: *Lecanora flotoviana*, *L. semipallida* (Zhao et al. 2016)

straminea (Ach.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora straminea* (Zhao et al. 2016)

torrida (Vainio) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora torrida* (Zhao et al. 2016)

wetmorei (Šliwa) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora wetmorei* (Zhao et al. 2016)

zosteræ (Ach.) Šliwa, Zhao Xin & Lumbsch Syn.: *Lecanora zosteræ* (Zhao et al. 2016)

MYRIONORA R. C. Harris

albidula (Willey) R. C. Harris Syn.: *Biatorella albidula*

MYRIOSPORA Nägeli ex Uloth (Arcadia & Knudsen 2012)

hassei (Herre) K. Knudsen & L. Arcadia Syns.: *Acarospora hassei*, *A. particularis*, *Silobia hassei* (Arcadia & Knudsen 2012)

rhagadiza (Nyl.) K. Knudsen & L. Arcadia Syns.: *Acarospora amphibola* auct., *Silobia rhagadiza* (Arcadia & Knudsen 2012)

scabrida (Hedl. ex Magn.) K. Knudsen & L. Arcadia Syns.: *Acarospora scabrida*, *Silobia scabrida* (Arcadia & Knudsen 2012)

smaragdula (Wahlenb. ex Ach.) Nägeli ex Uloth Syns.: *Acarospora amphibola*, *A. smaragdula*, *A. smaragdula* var. *lesdainii*, *Silobia smaragdula* (Arcadia & Knudsen 2012)

heppii (Nägeli ex Körber) Hue = *Caeruleum heppii*

immersa (Fink ex J. Hedrick) R. C. Harris = *Caeruleum immersum*

MYRIOTREMA Fée

clandestinum (Fée) Hale Syn.: *Ocellularia terebratula* (Lücking et al. 2016)

glauculum (Nyl.) Hale

microporum (Mont.) Hale Syn.: *Ocellularia micropora*
rugiferum (Harm.) Hale
 bahianum (Ach.) Hale North American reports are *Ocellularia obturascens* (Lücking et al. 2011)
 compunctum (Ach.) Hale = *Leucodecton occultum*
 erodens R. C. Harris = *Ocellularia erodens* (Lücking et al. 2016)
 glaucescens (Nyl.) Hale = *Leucodecton glaucescens*
 glaucophaenum (Kremp.) Hale = *Glaucotrema glaucophaenum*
 granulosum (Leighton) Hale Erroneously reported for North America
 halei (Tuck.) Hale = *Fibrillithecis halei*
 laeviusculum (Nyl.) Hale = *Ocellularia laeviusculum* (Lücking et al. 2016)
 peninsulae R. C. Harris = *Nadvornikia peninsulae* (Lücking et al. 2016)
 pycnoporellum (Nyl.) Hale (Lücking et al. 2011b) = *Pycnotrema pycnoporellum* (Lücking et al. 2016)
 reclusum (Kremp.) Hale = *Leucodecton compunctellum* (Lücking et al. 2016)
 subcompunctum (Nyl.) Hale = *Leucodecton subcompunctum*
 terebratulum (Nyl.) Hale = *Myriotrema clandestinum* (Lücking et al. 2016)
 wightii (Taylor) Hale = *Sanguinotrema wightii*

MYXOBILIMBIA Hafellner = **BILIMBIA** (Veldkamp 2004)
 accedens (Arnold) Hafellner = *Bilimbia accedens*
 sabuletorum (Schreber) Hafellner = *Bilimbia sabuletorum*

MYXOPHORA Döbbele & Poelt
 ***leptogiophila** (Minks ex G. Winter) Nik. Hoffm. & Hafellner (Hoffmann & Hafellner 2000)

MYXOTRICHUM Kunze
 ***bicolor** (Ehrenb. ex Pers.) Fr.
 poluninii Apinis = *M. bicolor*

NADVORNIKIA Tibell
hawaiiensis (Tuck.) Tibell
peninsulae (R. C. Harris) I. Medeiros, Lücking & Lumbsch Syn.: *Myriotrema peninsulae* (Lücking et al. 2016)
sorediata R. C. Harris

NAETROCYSMBE Körber
 #**atomarioides** (Müll. Arg.) R. C. Harris (Harris 1995a)
 #**atractospora** (Zahlbr.) R. C. Harris (Harris 1995a)
 #**cedrina** (Zahlbr.) R. C. Harris (Harris 1995a)
 #**fraxini** (Massal.) R. C. Harris (Harris 1995a)
herrei K. Knudsen & Lendemer (Knudsen & Lendemer 2009b)
 #**megalospora** (Lönnr.) R. C. Harris (Harris 1995a)
 #**punctiformis** (Pers.) R. C. Harris (Harris 1995a)
 #**quassiicola** (Fée) R. C. Harris (Harris 1995a)
saxicola (A. Massal.) R. C. Harris (Lendemer et al. 2010)
 #**massalongiana** (Hepp) R. C. Harris A European species, listed here erroneously (Harris 1995a)

NANOSTICTIS M. S. Christ.
 ***christiansenii** Etayo (Alstrup & Cole 1998)
 ***pseudocyphellariae** Sherwood

NECTRIA (Fr.) Fr.
 +**zonata** Seaver
 ***lecanodes** Ces. (Esslinger & Egan 1995) = *Nectriopsis lecanodes*
 ***parmeliae** (Berk. & M. A. Curtis) D. Hawksw. = *Ovicuculispora parmeliae*
 ***rubefaciens** Ellis & Everh. = *Nectriopsis rubefaciens*

NECTRIELLA Nitschke ex Fuckel

**anisospora* Lowen = *Pronectria anisospora*

NECTRIOPSIS Maire

**cladoniicola* M. S. Cole & D. Hawksw. (Cole & Hawksworth 2001)

**lecanodes* (Ces.) Diederich & Schroers Syn. *Nectria lecanodes* (Sérusiaux et al. 1999)

**rubefaciens* (Ellis & Everh.) M. S. Cole & D. Hawksw. Syn.: *Nectria rubefaciens* (Cole & Hawksworth 2001)

**parmeliae* (Berk. & M. A. Curtis) M. S. Cole & D. Hawksw. (Cole & Hawksworth 2001) = *Ovicuculispora parmeliae*

NEOBARYA Lowen

**peltigerae* Lowen, Boqueras & Gomez-Bolea (Zhurbenko 2009c)

NEOCATAPYRENIUM Harada

disparatum Breuss (Breuss 2005)

NEOCOLEROA Petrak

**inundata* (Vainio) Diederich (Harris & Lendemer 2009) Reported as uncertain

NEOFUSCELIA Essl. = XANTHOPARMELIA (Blanco et al. 2004b; but, see McCune et al 2014b)

ahtii (Essl.) Essl. = *Xanthoparmelia ahtii*

atticoides (Essl.) Essl. = *Xanthoparmelia atticoides*

brunella (Essl.) Essl. = *Xanthoparmelia brunella*

chiricahuensis (R. A. Anderson & W. A. Weber) Essl. = *Xanthoparmelia chiricahuensis*

infrapallida (Essl.) Essl. = *Xanthoparmelia infrapallida*

loxodes (Nyl.) Essl. = *Xanthoparmelia loxodes*

occidentalis (Essl.) Essl. = *Xanthoparmelia occidentalis*

pulla (Ach.) Essl. = *Xanthoparmelia pulla*, but not present in North America

pustulosa (Essl.) Essl. = *Xanthoparmelia pustulosa*

subhosseana (Essl.) Essl. = *Xanthoparmelia subhosseana*

verruculifera (Nyl.) Essl. = *Xanthoparmelia verruculifera*

NEOLAMYA Theissen & Sydow

**peltigerae* (Mont.) Theissen & Sydow (Alstrup & Cole 1998)

**xanthoparmeliae* Kocourk. (Kocourková 2009)

NEPHROMA Ach.

arcticum (L.) Torss.

bellum (Sprengel) Tuck.

expallidum (Nyl.) Nyl.

helveticum Ach. subsp. *helveticum* Syn.: *Nephromium helveticum*

helveticum subsp. *sipeanum* (Gyelnik) Goward & Ahti

isidiosum (Nyl.) Gyelnik

laevigatum Ach.

occultum Wetmore

parile (Ach.) Ach.

resupinatum (L.) Ach. Syn.: *Sticta drummondii*

aspera Tuck. = *N. helveticum* subsp. *helveticum*

canadense Räsänen = *N. helveticum* subsp. *sipeanum*

filarszkyanum Gyelnik = *N. bellum*

helveticum Ach. var. *sipeanum* (Gyelnik) Wetmore = *N. helveticum* subsp. *sipeanum*

laevigatum auct. non Ach. = *N. bellum*

lusitanicum Schaerer = *N. laevigatum* Ach. non auct.

massachusettsianum Gyelnik = *N. helveticum* subsp. *helveticum*

plittii Gyelnik = *N. helveticum* subsp. *helveticum*

rameum (Schaerer) A. Massal. (Fink 1935) = *N. resupinatum* (L.) Ach. (Wetmore 1960)
silvae-veteris Goward & Goffinet = *Lobaria silvae-veteris*
sipeanum Gyelnik = *N. helveticum* subsp. *sipeanum*
szatalae Gyelnik = *N. laevigatum*
subtomentellum (Nyl.) Gyelnik = *N. bellum*
washingtoniense Gyelnik = *N. laevigatum*

NEPHROMIUM Nyl. = **NEPHROMA**

helveticum (Ach.) Nyl. = *Nephroma helveticum*
tropicum (Müll. Arg.) Zahlbr. (Gyelnik 1932) = *Nephroma helveticum* subsp. *helveticum*

NEPHROMOPSIS Müll. Arg.

californica Gyelnik = *Tuckermannopsis orbata* (Tucker 2013)
ciliaris (Ach.) Hue = *Tuckermannopsis ciliaris*
platyphylla (Tuck.) Herre = *Tuckermannopsis platyphylla*

NESOLECHIA A. Massal.

cladoniscum (Willey) Fink = apothecia of *Pycnothelia papillaria*
**oxyspora* (Tul.) A. Massal. = *Phacopsis oxyspora*
**oxysporella* (Nyl.) Arnold (Fink 1935) Identity uncertain (Esslinger & Tucker 2009)
papillariae (Willey) Fink (Fink 1935) = apothecia of *Pycnothelia papillaria* (Rambold & Triebel 1992)
**thallicola* (A. Massal.) A. Massal. = *Phacopsis thallicola*
vitellinaria (Nyl.) Rehm (Fink 1935) = *Carbonea vitellinaria* (Scholz 2000)

NEUROPOGON Nees & Flotow = **USNEA**

lambii Imshaug = *Usnea lambii*
sulphureus (J. König) Hellbom = *Usnea sphacelata*
sphacelatus (R. Br.) Alstrup & E. S. Hansen = *Usnea sphacelata*

NIEBLA Rundel & Bowler

cedrosensis J. E. Marsh & T. H. Nash Syns.: *Vermilacinia cedrosensis*, *V. reptiloderma* (Bowler & Marsh 2004)
cephalota (Tuck.) Rundel & Bowler Syns.: *Desmazieria cephalota*, *Ramalina cephalota*, *Vermilacinia cephalota* (Bowler & Marsh 2004)
ceruchis Rundel & Bowler Syns.: *Desmazieria ceruchis*, *Ramalina ceruchis*, *Vermilacinia cerebrata*, *V. corrugata*, *V. ceruchis*, *V. howei*, *V. leoni*, *V. leopardina*, *V. nylanderi*, *V. vesiculosa*, *V. zebrina* (Bowler & Marsh 2004)
ceruchoides Rundel & Bowler Syns.: *Desmazieria ceruchoides*, *Vermilacinia ceruchoides*, *V. acicularis*, *V. pumila* (Bowler & Marsh 2004)
combeoides (Nyl.) Rundel & Bowler Syns.: *Desmazieria combeoides*, *Ramalina combeoides*, *Vermilacinia combeoides* (Bowler & Marsh 2004)
homalea (Ach.) Rundel & Bowler Syns.: *Desmazieria homalea*, *D. testudinaria*, *Ramalina homalea*, *R. testudinaria*
isidiascens Bowler, J. E. Marsh, T. H. Nash & Riefner
laevigata Bowler & Rundel Syns.: *Vermilacinia johncassadyi*, *V. laevigata*, *V. ligulata*, *V. paleoderma*, *V. rigida*, *V. rosei*, *V. varicosa* (Bowler & Marsh 2004)
polymorpha Bowler, J. E. Marsh, T. H. Nash, & Riefner Syn.: *Vermilacinia polymorpha* (Bowler & Marsh 2004)
procera Rundel & Bowler Syn.: *Vermilacinia procera* (Bowler & Marsh 2004)
ramosissima Spjut (Spjut 1996, Knudsen & Wheeler 2015)
robusta (R. Howe) Rundel Syns.: *Ramalina combeoides* var. *robusta*, *Vermilacinia robusta* (Bowler & Marsh 2004)
tuberculata Riefner, Bowler, J. E. Marsh & T. H. Nash Syn.: *Vermilacinia tuberculata* (Bowler & Marsh 2004)
caespitosa Spjut (Spjut 1996) = *N. homalea*
cornea Spjut (Spjut 1996) = *N. homalea*

dactylifera Spjut (Spjut 1996) = *N. homalea*
 disrupta (Nyl.) Spjut (Spjut 1996) = *N. homalea*
 dissecta Spjut (Spjut 1996) = *N. homalea*
 eburnea Spjut (Spjut 1996) = *N. homalea*
 fimbriata Spjut (Spjut 1996) = *N. homalea*
 flaccescens (Nyl.) Rundel & Bowler = a South American species, not in North America
 flagelliforma Spjut (Spjut 1996) = *N. homalea*
 halei Spjut (Spjut 1996) = *N. homalea*
 infundibula Spjut (Spjut 1996) = *N. homalea*
 laminaria Spjut (Spjut 1996) = *N. homalea*
 palmeri Spjut (Spjut 1996) = *N. homalea*
 siphonoloba Spjut (Spjut 1996) = *N. homalea*
 sorediata Spjut (Spjut 1996) = *N. homalea*
 sorocarpia Spjut (Spjut 1996) = *N. homalea*
 testudinaria (Nyl.) Spjut (Spjut 1996) = *N. homalea*
 undulata Spjut (Spjut 1996) = *N. homalea*

NISSLIA Auersw.

***cladoniicola** D. Hawksw. & W. Gams (Hansen & Alstrup 1995)
 ***keissleri** Zhurb. (Zhurbenko & Pino-Bodas 2017)
 ***lobariae** Etayo & Diederich (Zhurbenko & Dillman 2010)
 ***peltigericola** (D. Hawksw.) Etayo (Zhurbenko 2010)

NIGROPUNCTA D. Hawksw.

***rugulosa** D. Hawksw. (Alstrup & Cole 1998)

NIGROVOTHELIUM Lücking, M. P. Nelsen & Aptroot

tropicum (Ach.) Lücking, M. P. Nelsen & Aptroot Syns.: *Pyrenula tropica*, *Trypethelium tropicum* (Aptroot et al. 2016)

NODOBRYORIA Common & Brodo

abbreviata (Müll. Arg.) Common & Brodo Syns.: *Bryoria abbreviata*, *Alectoria abbreviata*
oregana (Tuck.) Common & Brodo Syns.: *Bryoria oregana*, *Alectoria oregana*
subdivergens (E. Dahl) Common & Brodo Syns.: *Bryoria subdivergens*, *Alectoria subdivergens*

NORMANDINA Nyl.

pulchella (Borrer) Nyl. Syn.: *Lauderlindsaya borrieri* (Muggia et al. 2010)

OBRYZUM Wallr.

***corniculatum** Wallr. (Diederich 2007b)

OCELLULARIA G. Meyer

americana Hale
auberianoides (Nyl.) Müll. Arg. (Lücking et al. 2011b)
cavata (Ach.) Müll. Arg.
concolor Meyen & Flotow (Harris 1995a)
erodens (R. C. Harris) Kraichak, Lücking & Lumbsch Syns.: *Myriotrema erodens* (Lücking et al. 2016)
fissa (Nyl.) Hale
laeviuscula (Nyl.) Kraichak, Lücking & Lumbsch Syns.: *Leptotrema laeviusculum*, *Myriotrema laeviuscula* (Lücking et al. 2016)
obturascens (Nyl.) Hale (Lücking et al. 2011b) Syn.: *Thelotrema bahianum* var. *obturascens*
postposita (Nyl.) A. Frisch (Frisch 2006)
praestans (Müll. Arg.) Hale Syn.: *Thelotrema praestans*
retispora R. C. Harris
sanfordiana (Zahlbr.) Hale Syn.: *Thelotrema sanfordianum* Possible synonym of *Ocellularia interposita* (Frisch 2006)

alborosella (Nyl.) R. Sant. = Chapsa alborosella
 auberiana (Mont.) Hale = Stegobolus auberianus
 bahiana (Ach.) A. Frisch North American reports are O. obturascens (Lücking et al. 2011)
 carnea (Eckfeldt) Zahlbr. = Mazosia carnea
 domingensis (Fée) Müll. Arg. = misidentification for North America
 emersa (Kremp.) Müll. Arg. (Harris 1995a) = Rhabdodiscus emersus
 floridensis Fink = Thelotrema porinoides
 glaucophaena (Kremp.) Zahlbr. = Glaucotrema glaucophaenum
 granulosa (Tuck.) Zahlbr. = Rhabdodiscus granulatus
 interposita (Nyl.) Hale = misidentification for North America
 lathraea (Tuck.) Zahlbr. = Thelotrema lathraeum
 leiostoma (Tuck.) R. C. Harris = Redingeria leiostoma (Tuck.) A. Frisch, but not in North America (Frisch & Kalb 2006)
 meiosperma (Nyl.) Hale = Melanotrema meiospermum
 micropora (Mont.) Müll. Arg. = Myriotrema microporum
 stictidea (Nyl.) Vězda = Trinathotrema stictideum
 subtilis (Tuck.) Riddle = Thelotrema subtile
 terebratula (Nyl.) Müll. Arg. = Myriotrema clandestinum

OCHROLECHIA A. Massal.

africana Vainio
alaskana (Versegghy) Kukwa (Kukwa 2009b)
androgyna (Hoffm.) Arnold
antillarum Brodo
arborea (Kreyer) Almb.
brodoi Kukwa (Brodo & McCune 2017)
bryophaga (Erichsen) K. Schmitz & Lumbsch Syn.: Pertusaria bryophaga
farinacea Howard
frigida (Sw.) Lynge
gowardii Brodo
grimmiae Lynge
gyalectina (Nyl.) Zahlbr.
inaequatula (Nyl.) Zahlbr.
isidiata (Malme) Versegghy (Lendemer & Harris 2014b)
juvenalis Brodo
laevigata (Räsänen) Versegghy
mahluensis Räsänen (Brodo & Lendemer 2012; Knudsen 2012)
mexicana Vainio
microstictoides Räsänen (Brodo & Lendemer 2012)
montana Brodo
oregonensis H. Magn.
pseudopallescens Brodo
rhodoleuca (Th. Fr.) Brodo Syn.: Pertusaria rhodoleuca
splendens Lumbsch & Messuti (Roemer et al. 2004)
subathallina H. Magn.
subisidiata Brodo
subpallescens Versegghy
subplicans (Nyl.) Brodo subsp. **subplicans** Syn.: Pertusaria subplicans
subplicans subsp. **hultenii** (Erichsen) Brodo Syn.: Pertusaria hultenii
szatalaënsis Versegghy
tartarea (L.) A. Massal.
 [Pertusaria **trachydactyla** Vainio]
trochophora (Vainio) Oshio var. **trochophora**
trochophora var. **pruinerosella** Brodo
turneri (Sm.) Hasselrot (Brodo & Lendemer 2012)
upsaliensis (L.) A. Massal.

xanthostoma (Sommerf.) K. Schmitz & Lumbsch Syn.: *Pertusaria xanthostoma*
yasudae Vainio
 alboflavescens (Wulfen) Zahlbr. = a European taxon, not in North America
 apiculata Verseghe Mistakenly reported for North America
 californica Verseghe = *O. oregonensis*
 elisabethae-kolae Verseghe = *O. frigid*
 frigida f. alaskana Verseghe = *O. alaskana*
 geminipara (Th. Fr.) Vainio = *Pertusaria geminipara*
 gonatodes (Ach.) Räsänen = *O. frigida*
 groenlandica Verseghe = *O. frigida* (Kukwa 2009a)
 pacifica H. Magn. = *Coccotrema pocillarium*
 pallescens (L.) A. Massal. Not in North America
 parella (L.) A. Massal. Not in North America
 pennsylvanica Verseghe = *O. yasudae*
 pseudotartarea (Vainio) Verseghe = *O. szatalaënsis* (Brodo 1992, Messuti & Lumbsch 2000)
 pterulina (Nyl.) Howard = *O. frigida*
 rhamni-purshianae E. Senft Identity uncertain
 rosella (Müll. Arg.) Verseghe = *O. trochophora*
 solediosa Howard = *O. szatalaënsis*
 subviridis (Høeg) Erichsen Not in North America
 tuckermanii Verseghe = *O. yasudae*

ODONTOTREMA Nyl. (Baloch et al. 2013b)

*bryoriae Diederich & Etayo (Diederich et al. 2002) = *Sphaeropezia intermedia*
 *intermedium Diederich, Zhurb. & Etayo (Diederich et al. 2002) = *Sphaeropezia intermedia*
 *lecanorae Diederich & G. Marson (Diederich et al. 2002) = *Sphaeropezia lecanorae*
 *melaneliae Diederich & Zhurb. (Diederich et al. 2002) = *Sphaeropezia melaneliae*
 *ochrolechia Diederich, Holien & Zhurb. (Diederich et al. 2002) = *Sphaeropezia ochrolechia*
 *santessonii Zhurb., Etayo & Diederich (Zhurbenko 2012) = *Sphaeropezia santessonii*
 *sipei (Grumann) Diederich (Diederich et al. 2002) = *Sphaeropezia sipei*
 *thamnoliae Zhurb., Diederich & Etayo (Zhurbenko 2012) = *Sphaeropezia thamnoliae*

OMPHALARIA Girard & Dunal ex Nyl. = THYREA

girardii Durieu & Mont. = *Thyrea girardii*
 kansana Tuck. = *Peccania kansana*
 pulvinata (Schaerer) Nyl. (Claassen 1912) North American reports are *Thyrea confusa*
 symphorea (Ach.) Tuck. = *Synalissa ramulosa*
 umbella Tuck. = *Lempholemma umbella*

OMPHALINA Quélet

alpina (Britzelm.) Bresinsky & Stangl = *Lichenomphalia alpina*
 ericetorum (Pers. : Fr.) M. T. Lange = *Lichenomphalia umbellifera*
 hudsoniana (H. S. Jenn.) H. E. Bigelow = *Lichenomphalia hudsoniana*
 luteovitellina (Pilát & Nannf.) M. T. Lange = *Lichenomphalia alpina*
 *peltigerina (Peck) P. Collin = *Arrhenia peltigerina*
 umbellifera (L. : Fr.) Quélet = *Lichenomphalia umbellifera*
 velutina (Quélet) Quélet = *Lichenomphalia velutina*

OMPHALODISCUS Schol. = UMBILICARIA

crustulosus (Ach.) Schol. = *Umbilicaria crustulosa*
 decussatus (Vill.) Schol. = *Umbilicaria decussata*
 krascheninnikovii (Savicz) Schol. = *Umbilicaria krascheninnikovii*, but N.A. reports are *U. polaris*
 virginis (Schaerer) Schol. = *Umbilicaria virginis*

OMPHALODIUM Meyen & Flotow

arizonicum (Tuck.) Tuck. = *Omphalora arizonica*

OMPHALORA T. H. Nash & Hafellner

arizonica (Tuck.) T. H. Nash & Hafellner Syns.: *Lecanora arizonica*, *Omphalodium arizonicum*, *Parmelia arizonica*

OPEGRAPHA Ach.

***agelaea** Fée (Ertz 2009)

anguinella (Nyl.) Ertz & Diederich (Ertz et al. 2009) Syns.: *Enterographa anguinella*, *Schismatomma pallidellum* auct.

***anomea** Nyl. (Ertz et al. 2004)

astraea Tuck. Syn.: *Melaspilea octomera*

aurantiaca B. de Lesd. (Harris 1995a)

bonplandii Fée

***buelliae** Zhurb. (Zhurbenko 2013)

candida Müll. Arg.

corticola Coppins & P. James (Tønsberg 2002)

***diffracticola** R. C. Harris & Ladd (Harris & Ladd 2005, 2007)

dolomitica (Arnold) Clauzade & Cl. Roux ex Torrente & Egea (Lendemer et al. 2009b)

erosa Egea & Ertz (Ertz & Egea 2007))

***foreau** (Moreau) Hafellner & R. Sant. (Diederich 2003)

fumosa Coppins & P. James (Tønsberg 1997 [1998])

***geographicola** (Arnold) Hafellner (Dillman et al. 2012)

gyrophorica F. Seavey & J. Seavey (Seavey et al. 2014)

***hellespontica** Vondrák & Kocourk. (Kocourková & Knudsen 2009d)

herbarum Mont.

keyensis F. Seavey & J. Seavey (Seavey et al. 2014)

***lamyi** (O. J. Rich. ex Nyl.) Triebel Syn.: *Leciographa lamyi*

leucoplaca Müll. Arg.

levidensis Willey (Fink 1935, Esslinger & Tucker 2009)

lithyrga Ach.

***melanospila** Müll. Arg. (Diederich 2003)

mesophlebia Nyl. Syn.: *Melaspilea mesophlebia* (Perlmutter et al. 2015)

microcycla Tuck.

moroiana Lendemer (Lendemer 2009)

niveoatra (Borrer) J. R. Laundon

***phaeophysciae** R. Sant., Diederich, Ertz & Christnach (Hafellner 2009)

prosodea Ach.

protocetrarica F. Seavey & J. Seavey (Seavey et al. 2014)

protuberans Zahlbr.

***pulvinata** Rehm Syn.: *Opegraphoidea pulvinata*

ravenelii (Tuck.) Tehler Syns.: *Lecanactis ravenelii*, *Platygrapha ravenelii*, *Schismatomma ravenelii*

***rupestris** Pers. Syn.: *Leciographa parasitica*

sorediifera P. James

***sphaerophoricola** Isbrand & Alstrup

***stereocaulicola** Alstrup & D. Hawksw. (Zhurbenko 2010)

***thelotrematis** Coppins (Tønsberg 1997 [1998])

umbellulariae Zahlbr.

vulgata Ach.

xerica Torrente & Egea (Ertz & Egea 2007)

atra Pers. = *Arthonia atra* (Ertz et al. 2009)

betulina Sm. = *O. herbarum*

bicolor R. C. Harris & Lendemer (Harris & Lendemer 2005) = *Alyxoria bicolor* (Ertz & Tehler 2011)

brattiae Egea & Ertz (Ertz & Egea 2007) = *Lecanographa brattiae* (Ertz & Tehler 2011)

calcare Turner ex Sm. & Sowerby = *Arthonia calcarea* (Ertz et al. 2009)

cinerea Chevall. = *O. vulgata*

cypressi R. C. Harris = *Vigneronia cypressi* (Ertz et al. 2015b)

demissa Tuck = Melaspilea demissa
 diaphora (Ach.) Ach. = Alyxoria varia
 diaphoroides Nyl. = Lecanographa grumulosa
 filicina Mont. = Fouragea filicina (Frisch et al. 2014)
 *glaucomaria (Nyl.) Källsten ex Hafellner = *Phacographa glaucomaria
 gyrocarpa Flotow = Gyrographa gyrocarpa (Ertz et al. 2015b)
 hassei Zahlbr. = Lecanographa hypothallina
 herpetica (Ach.) Ach. = O. rufescens
 herpetica var. subocellata Ach. (Fink 1935) = O. rufescens (Santesson et al. 2004)
 hypothallina (Zahlbr.) Tehler = Lecanographa hypothallina
 lichenoides Pers. = Alyxoria varia
 longissima Müll. Arg. = Dimidiographa longissima (Ertz & Tehler 2011)
 mesophlaebia Nyl. (Fink 1935) Orthographic variant of O. mesophlebia Nyl. = Melaspilea mesophlebia
 mougeotii A. Massal. (Harris & Ladd 2005) = Alyxoria mougeotii
 ochrocheila Nyl. = Alyxoria ochrocheila (Ertz & Tehler 2011)
 oulocheila Tuck. = Dermiscellum oulocheila
 *physciaria (Nyl.) D. Hawksw. & Coppins (Cole & Hawksworth 2001) = Phacothecium varium (Hafellner 2009)
 prosiliens Stirton = O. protuberans
 pulicaris auct. = Alyxoria varia
 *quaternella Nyl. = O. anomea (Ertz et al. 2004)
 rimalis Pers. ex Ach. = Alyxoria varia
 rufescens Pers. = Pseudoschismatomma rufescens (Ertz et al. 2015b)
 *saxicola Ach. = O. rupestris
 scaphella var. gemella (Eschw.) Eckfeldt (Fink 1935) = Melaspilea gemella
 *trassii S. Y. Kondr. & Coppins (Coppins & Kondratyuk 1998) = O. foreau
 *tribulodes Tuck. (Mohr 1901) = Melanographa tribulodes
 varia Pers. = Alyxoria varia (Ertz & Tehler 2011)
 viridis (Pers. ex Ach.) Behlen & Desberger = Zwackhia viridis (Ertz & Tehler 2011)
 *wetmorei M. S. Cole & D. Hawksw. (Cole & Hawksworth 2001) = O. anomea (Ertz et al. 2004)
 zonata Körber (Sparrius 2004b) = Enterographa zonata (Ertz et al. 2009)

OPEGRAPHOIDEA Fink

***staurothelicola** Fink (fide D. Ertz)
 *pulvinata (Rehm) Fink = Opegrapha pulvinata
 *quaternella (Nyl.) Fink = Opegrapha anomea

OPHIOPARMA Norman

lapponica (Räsänen) Hafellner & R. W. Rogers
rubricosa (Müll. Arg.) S. Ekman Syns.: Bacidia rubricosa, B. herrei, Haematomma californicum
ventosa (L.) Norman (May 1997)
 herrei (Zahlbr.) Kalb & Staiger (Staiger & Kalb 1995) = O. rubricosa (Ekman 1996)

ORCULARIA (Malme) Kalb & Giralt (Kalb & Giralt 2011)

insperata (Nyl.) Kalb & Giralt Syn.: Amandinea insperata (Kalb & Giralt 2011)
placodiomorpha (Vainio) Kalb & Giralt Syn.: Amandinea placodiomorpha, Buellia placodiomorpha (Kalb & Giralt 2011)

ORPHNIOSPORA Körber

moriopsis (A. Massal.) D. Hawksw. Syns.: Buellia atrata, B. moriopsis, B. coracina
 atrata (Sm.) Poelt = O. moriopsis

OVICUCULISPORA Etayo (Etayo 2010)

***parmeliae** (Berk. & M. A. Curtis) Etayo (Etayo 2010) Syns.: Nectria parmeliae, Nectriopsis parmeliae

OXNERIA S. Y. Kondr. & Kärnefelt (Kondratyuk & Kärnefelt 2003a, 2003b) = **XANTHOMENDOZA** (Lindblom 2006)

weberi S. Y. Kondr. & Kärnefelt = *Xanthomendoza weberi* (Lindblom 2006)

PACHNOLEPIA A. Massal. (Frisch et al. 2014)

pruinata (Pers.) Frisch & G. Thor Syn.: *Arthonia pruinata*

PACHYOSPORA A. Massal.

mutabilis (Ach.) A. Massal. = *Megaspora verrucosa*

verrucosa (Ach.) A. Massal. = *Megaspora verrucosa*

PACHYPELTIS Söchting, Arup & Frödén (Arup et al. 2013)

cladodes (Tuck.) Söchting, Frödén & Arup Syn.: *Caloplaca cladodes*, *Placodium cladodes*

invadens (Lynge) Söchting, Frödén & Arup Syn.: *Caloplaca invadens*

PACHYPHIALE Lönnr. = **GYALECTA** (Baloch et al. 2013a)

carneola (Ach.) Arnold = *Gyalecta carneola*

fagicola (Arnold) Zwackh = *Gyalecta fagicola*

gyalizella (Nyl.) S. Ekman = *Gyalecta gyalizella*

PACHYPHYSIS R. C. Harris & Ladd (Harris & Ladd 2005, 2007)

ozarkana R. C. Harris & Ladd (Harris & Ladd 2005, 2007)

PALICELLA Rodr. Flakus & Printzen (Rodriguez Flakus & Printzen 2014)

filamentosa (Stirton) Rodr. Flakus & Printzen Syn.: *Lecanora filamentosa*

schizochromatica (Pérez-Ortega, T. Sprib. & Printzen) Rodr. Flakus & Printzen Syn.: *Lecanora schizochromatica*

PANNARIA Delise

conoplea (Ach.) Bory

elatio Stirton (Jørgensen 2000c)

hookeri (Borrer ex Sm.) Nyl.

lurida (Mont.) Nyl. subsp. **lurida** Syn.: *Physma luridum*

lurida subsp. **quercicola** P. M. Jørg. (Jørgensen 2000c)

lurida subsp. **russellii** (Tuck.) P. M. Jørg. (Jørgensen 2000c)

rubiginella P. M. Jørg. & Sipman (Jørgensen 2005)

rubiginosa (Thunb.) Delise

subfusca P. M. Jørg. (Jørgensen 2000c)

tavaresii P. M. Jørg.

ahlneri P. M. Jørg. = *Fuscopannaria ahlneri*

crossophylla Tuck. = *Rockefelleria crossophylla*

cyanolepra Tuck. = *Fuscopannaria cyanolepra*

granatina (Sommerf.) Th. Fr. = *Euopsis granatina*

halei Tuck. = *Phyllopsora halei*

hypnorum (Vahl) Körber = *Psoroma hypnorum*

isidiata Degel. = *Tingiopsidium isidiatum* (Hafellner & Spribille 2016)

laceratula Hue = *Fuscopannaria laceratula*

lepidiota (Sommerf.) Th. Fr. = *Fuscopannaria praetermissa*

leucophaea (Vahl) P. M. Jørg. = *Vahliella leucophaea*

leucosticta Tuck. = *Fuscopannaria leucosticta*

leucostictoides Ohlsson = *Fuscopannaria leucostictoides*

malmei C. W. Dodge (Jørgensen 2000c) = misidentification of *P. rubiginella*

mariana (Fr.) Müll. Arg. = *Lepidocollema marianum* (Jørgensen 2000c, Ekman et al. 2014)

maritima P. M. Jørg. = *Fuscopannaria maritima*

mediterranea Tav. = *Fuscopannaria mediterranea*

melamphylla Tuck. = Lichinella melamphylla
 microphylla "(Sw.)" Delise = Vahliella leucophaea
 microphylla var. californica Tuck. = Vahliella californica
 molybdaea (Pers.) Tuck. = Coccocarpia pellita
 nigra (Hudson) Nyl. = Placynthium nigrum
 nigrocincta (Mont.) Nyl. (Mohr 1901) = Parmeliella nigrocincta, but a probable misidentification for North America
 pannosa Nyl. = Parmeliella pannosa
 petersii (Nyl.) Tuck. = Placynthium petersii
 pezizoides (Weber) Trevisan = Protopannaria pezizoides
 pityrea auct. = P. conoplea
 praetermissa Nyl. = Fuscopannaria praetermissa
 pulveracea P. M. Jørg. & Henssen = Fuscopannaria pulveracea
 rubiginosa var. lanuginosa (Hoffm.) Zahlbr. = P. conoplea
 saubinetii (Mont.) Nyl. = Vahliella saubinetii
 stenophylla Tuck. = Placynthium stenophyllum
 stylophora Vainio = Lepidocollema stylophorum (Ekman et al. 2014)
 sonomensis Tuck. = Tingiopsidium sonomense (Hafellner & Spribille 2016)
 stellata (Tuck.) Nyl. = Coccocarpia stellata
 triptophylla (Ach.) A. Massal. = Parmeliella triptophylla
 waghornei Eckfeldt = identity uncertain, possibly Santessoniella arctophila

PARABAGLIETTOA Gueidan & Cl. Roux

disjuncta (Arnold) Krzewicka (McCune et al. 2014b)

PARANECTRIA Sacc.

***alstrupii** Zhurb. (Zhurbenko & Dillman 2010)

***oropensis** (Ces.) D. Hawk. & Piroz.

subsp. parvisseptata M. S. Cole & D. Hawk. (Cole & Hawksworth 2001) = P. oropensis (Diederich 2003)

PARAPARMELIA Elix & J. Johnston

alabamensis (Hale & McCull.) Elix & J. Johnston = Canoparmelia alabamensis (Hale & McCull.) Elix (Elix 2001)

PARASCHISMATOMMA Ertz & Tehler (Ertz & Tehler 2012)

ochroleucum (Zahlbr.) K. Knudsen, Ertz & Tehler Syns.: Chiodecton ochroleucum, Platygrapha plurilocularis, Schismatomma pluriloculare (Ertz & Tehler 2011)

PARATHELIUM Nyl. = **PYRENULA**

cuyabense Malme = Pyrenula cuyabensis

emergens Nyl. ex Müll. Arg. = Pyrenula erumpens

martinicanum Vainio = Pyrenula adacta

microcarpum Riddle = Pyrenula microtheca

subferrugineum Malme = Pyrenula circumfiniens

PARMELIA Ach.

barrenoae Divakar, M. C. Molina & A. Crespo (Hodkinson et al. 2010)

fertilis Müll. Arg.

fraudans (Nyl.) Nyl.

hygrophila Goward & Ahti

imbricaria Goward, Divakaar, M. C. Molina & A. Crespo (Molina et al. 2016)

mayi Divakar, A. Crespo, M. C. Molina (Molina et al. 2011)

neodiscordans Hale

omphalodes (L.) Ach.

pinnatifida Kurok. (Crespo et al. 2004)

pseudosulcata Gyelnik
saxatilis (L.) Ach.
skultii Hale
squarrosa Hale
sulcata Taylor
sulymae Goward, Divakar, M. C. Molina & A. Crespo (Molina et al. 2016)
 acanthifolia Pers. = Parmotrema cetratum
 abstrusa Vainio = Relicina abstrusa
 ahtii Essl. = Xanthoparmelia ahtii
 ajoensis T. H. Nash = Xanthoparmelia ajoensis
 alabamensis Hale & McCull. = Canoparmelia alabamensis
 albertana Ahti = Melanelixia albertana
 aleuritica Nyl. = Arctoparmelia centrifuga
 almquistii Vainio = Allantoparmelia almquistii
 alpicola Th. Fr. = Allantoparmelia alpicola
 amazonica Nyl. = Canoparmelia amazonica
 andreana Müll. Arg. = Flavopunctelia flaventior
 antillensis Nyl. = Parmotremopsis antillensis
 appalachensis W. L. Culb. = Punctelia appalachensis
 arizonica (Tuck.) Nyl. (Fink 1935) = Omphalora arizonica
 arnoldii Du Rietz = Parmotrema arnoldii
 arseneana Gyelnik = Xanthoparmelia novomexicana
 aspera A. Massal. = Melanohalea exasperata
 aspidota (Ach.) Poetsch = Melanohalea exasperata
 atrofusca (Schaerer) Crombie = Brodoa atrofusca
 atticoides Essl. = Xanthoparmelia atticoides
 aurulenta Tuck. = Myelochroa aurulenta
 austerodes Nyl. = Hypogymnia austerodes
 austrosinensis Zahlbr. = Parmotrema austrosinense
 baltimorensis Gyelnik & Főriss = Flavoparmelia baltimorensis
 birulae Elenkin var. grumosa Llano = Arctoparmelia separata
 bitteri Lynge = Hypogymnia bitteri
 bolliana Müll. Arg. = Punctelia bolliana
 borrieri (Sm.) Turner = Punctelia borrieri
 brunella Essl. = Xanthoparmelia brunella
 caperata (L.) Ach. = Flavoparmelia caperata
 caperata var. incorrupta (J. P. Moore) E. C. Berry = Flavopunctelia praesignis
 caroliniana Nyl. = Canoparmelia caroliniana
 catawbiensis (Degel.) Hale & M. Wirth = Hypotrachyna catawbiensis
 centrifuga (L.) Ach. = Arctoparmelia centrifuga
 cetrarioides (Delise ex Duby) Nyl. = Cetrelia cetrarioides
 cetrata Ach. = Parmotrema cetratum
 cetrata var. hypotropoides Nyl. ex Willey = Parmotrema hypotropum
 chiricahuensis R. A. Anderson & W. A. Weber = Xanthoparmelia chiricahuensis
 chlorochroa Tuck. = Xanthoparmelia chlorochroa
 chrysantha Tuck. = Parmotrema xanthinum (Lendemer 2016a)
 cirrhata Fr. = Everniastrum cirrhatum, but a misidentification for North America.
 cladonia (Tuck.) Du Rietz = Pseudevernia cladonia
 claudelii (Harm.) Vainio = Parmotrema stuppeum
 colpodes (Ach.) Stizenb. (Fink 1935) = Anzia colpodes
 commensurata Hale = Parmotrema commensuratum
 concreta Stizenb. Identity uncertain, see note under Flavoparmelia
 confoederata W. L. Culb. = Bulbothrix confoederata
 congensis Stein = Xanthoparmelia congensis, but not found in North America north of Mexico.
 congruens auct. = Pseudoparmelia uleana
 conspersa (Ehrh. ex Ach.) Ach. = Xanthoparmelia conspersa

conspersa var. subconspersa (Nyl.) Gyelnik = *Flavoparmelia rutidota*
 conspurcata (Schaerer) Vainio = *Melanelixia subargentifera*
 coralloidea (Meyen & Flotow) Vainio (Fink 1935) = *Leptogium coralloideum*, but N. Am. reports were apparently an unknown species of *Parmotrema* (Esslinger & Tucker 2009)
 coronata Fée = *Bulbothrix coronata*
 crinita Ach. = *Parmotrema crinitum*
 cristifera Taylor = *Parmotrema cristiferum*
 croceopustulata Kurok. = *Hypotrachyna croceopustulata*
 crozalsiana B. de Lesd. ex Harm. = *Crespoa crozalsiana*
 cryptochlorophaea Hale = *Canoparmelia cryptochlorophaea*
 cubensis Nyl. = *Pseudoparmelia cubensis*
 cumberlandia (Gyelnik) Hale = *Xanthoparmelia cumberlandia*
 cylisphora (Ach.) Vainio = *Flavoparmelia caperata*
 darrowi J. W. Thomson = *Flavopunctelia darrowi*
 delavayi Hue = *Hypogymnia delavayi* (Hue) Rass., but a misidentification for North America
 denalii Krog = *Montanelia disjuncta*
 densirhizinata Kurok. = *Hypotrachyna densirhizinata*
 dentella Hale & Kurok. = *Hypotrachyna dentella*
 dierythra Hale = *Xanthoparmelia dierythra*
 diffractaica Essl. = *Parmotrema diffractaicum*
 digitata Lynge = *Hypotrachyna physcioides* (Nyl.) Hale, but a misidentification for North America (?)
 dilatata Vainio = *Parmotrema dilatatum*
 disjuncta Erichsen = *Montanelia disjuncta*
 dissecta Nyl. = *Hypotrachyna minarum*
 dissensa T. H. Nash = *Xanthoparmelia dissensa*
 dominicana Vainio = *Parmotrema dominicanum*
 dubia (Wulfen) Schaerer = *Punctelia subrudecta* (Nyl.) Krog, but a misidentification for North America
 duplicata var. douglasicola Gyelnik = *Hypogymnia physodes*
 elegantula (Zahlbr.) Szatala = *Melanohalea elegantula*
 elongata J. Hillmann = *Hypogymnia duplicata* (Spribille et al. 2010)
 encausta (Sm.) Nyl. = *Brodoa intestiniformis*, but this species is not found in North America
 endosulphurea (Hillm.) Hale = *Parmotrema endosulphureum*
 endoxantha G. Merr. = *Pseudoparmelia uleana*
 ensifolia Kurok. = *Hypotrachyna ensifolia*
 enteromorpha Ach. = *Hypogymnia enteromorpha*
 epiclada Hale = *Parmotrema submarginale*
 erecta E. C. Berry = *Parmotrema perforatum*
 eurysaca Hue = *Parmotrema eurysacum*
 exasperata De Not. = *Melanohalea exasperata*
 exasperatula Nyl. = *Melanohalea exasperatula*
 eximbricata (Gyelnik) Hale & Kurok. = *Relicina eximbricata*
 finkii Zahlbr. = *Myelochroa obsessa*
 flaventior Stirton = *Flavopunctelia flaventior*
 flavicans (Tuck.) Tuck. = *Flavoparmelia caperata*
 formosana Zahlbr. = *Hypotrachyna osseoalba*
 frondifera G. Merr. = *Punctelia bolliana*
 fuliginosa (Wibel) Nyl. (Fink 1935) = *Melanelixia fuliginosa*, but North American reports are misidentifications (Leavitt et al. 2012)
 furfuracea (L.) Ach. = *Pseudevernia intensa* and *P. consocians* for North American records
 galbina Ach. = *Myelochroa galbina*
 glabra (Schaerer) Nyl. North American records are *Melanelixia californica*
 glabratula (Lamy) Nyl. = *Melanelixia glabratula*
 glabroides Essl. = *Melanelixia glabroides*
 goebelii Zenker North American reports are *Bulbothrix scortella* (Benatti & Elix 2012)
 gondylophora Hale = *Hypotrachyna gondylophora*

graminicola B. de Lesd. = *Punctelia graminicola*
 granulosa Lynge = *Montanelia disjuncta*
 hababiana Gyelnik = *Parmotrema hababianum*
 haitiensis Hale = *Parmotrema haitiense*
 halei Ahti = *Melanohalea halei*
 halseyana Tuck. (Fink 1935) = *Arctoparmelia centrifuga* (Hale & DePriest 1999, Esslinger & Tucker 2009)
 herreana Zahlbr. = *Flavoparmelia caperata*
 herrei Zahlbr. = *Parmotrema herrei*
 horrescens Taylor = *Hypotrachyna horrescens*
 huachucensis T. H. Nash = *Xanthoparmelia huachucensis*
 hubrichtii E. C. Berry = *Hypotrachyna minarum*
 hypoleucina J. Steiner = *Parmotrema hypoleucinum*
 hypoleucites Nyl. = *Punctelia hypoleucites*
 hypomelaena Hale = *Xanthoparmelia hypomelaena*
 hypopsila Müll. Arg. = *Xanthoparmelia hypopsila*, but North American records are *X. angustiphylla*
 hypotropa Nyl. = *Parmotrema hypotropum*
 hypotropa var. sorediata Müll. Arg. (Fink 1935) = *Parmotrema hypotropum* (Esslinger & Tucker 2009)
 hypotropoides Nyl. ex Willey = *Parmotrema perforatum*
 hypotrypodes (Nyl.) Willey (Fink 1935) Apparent orthographic error for *P. hypotropoides* (Esslinger & Tucker 2009)
 imbricatula Zahlbr. = *Hypotrachyna imbricatula*
 incorrupta J. P. Moore = *Flavopunctelia praesignis*
 incurva (Pers.) Fr. = *Arctoparmelia incurva*
 infrapallida Essl. = *Xanthoparmelia infrapallida*
 infumata Nyl. = *Melanohalea infumata*
 internexa Nyl. = *Parmotrema internexum*
 intestiniformis (Vill.) Ach. = *Brodoa intestiniformis*, but North American reports are *B. oroarctica*
 ioanis-simae Gyelnik = *Xanthoparmelia taractica*, but western North American records are probably *Xanthoparmelia coloradoensis*
 isidiata (Anzi) Gyelnik = *Xanthoparmelia conspersa*
 isidiosa (Müll. Arg.) Hale = misidentification for North America
 isidiotyla Nyl. = *Xanthoparmelia loxodes*
 joranadia T. H. Nash = *Xanthoparmelia joranadia*
 kernstockii (Lynge) Zahlbr. = *Flavopunctelia flaventior*
 kerguelensis A. Wilson = chemotype of *Parmelia saxatilis*
 kerguelensis auct. N. Am. = *Parmelia pseudosulcata*
 kurokawae Hale = *Xanthoparmelia lavicola*
 laciniatula (Flagey) Zahlbr. (Eyderdam 1960) = misidentification for North America
 laevigata (Sm.) Ach. = *Hypotrachyna laevigata*
 laevigatula Nyl. = *Bulbothrix laevigatula*
 lanata (L.) Wallr. = *Pseudephebe pubescens*
 latissima Fée = *Parmotrema latissimum*, but reports are a misidentification for North America.
 lecanorica Hale = *Xanthoparmelia lecanorica*, but reports are a misidentification for North America
 leucochlora Tuck. = *Pseudoparmelia cubensis*
 lineola E. C. Berry = *Xanthoparmelia lineola*
 livida Taylor = *Hypotrachyna livida*
 lobulifera Degel. = *Hypotrachyna imbricatula*
 lobulifera var. insensitiva Degel. = *Hypotrachyna ensifolia*
 lobulifera var. luteoreagens Degel. = *Hypotrachyna imbricatula*
 lobulifera var. sanguineoreagens Degel. = *Hypotrachyna prolongata*
 lophyrea Ach. (Fink 1935) = *Hypogymnia lophyrea*
 louisianae Hale = *Parmotrema louisianae*
 loxodes Nyl. = *Xanthoparmelia loxodes*
 madagascariacea (Hue) Abbayes = *Parmotrema xanthinum* (Lendemer 2016a)
 mandshurica Asahina = *Flavopunctelia soredica*

margaritata Hue = Parmotrema margaritatum
 martinicana Nyl. = Canoparmelia martinicana
 maxima Hue = Parmotrema stuppeum
 mellissii C. W. Dodge = Parmotrema mellissii
 mesogens Nyl. (Fink 1935) Apparent typographic error for P. mesogenes Nyl = Parmotrema
 mesogenes, a misidentification for North America (Esslinger & Tucker 2009)
 metarevoluta Asahina = Myelochroa metarevoluta
 mexicana Gyelnik = Xanthoparmelia mexicana
 michauxiana Zahlbr. = Parmotrema submarginale
 molliuscula Ach. = misidentification for North America
 monticola J. P. Dey = Xanthoparmelia monticola
 mordenii Hale = Parmotrema mordenii
 mougeotii Schaerer = Xanthoparmelia mougeotii
 multispora A. Schneider = Melanohalea multispora
 negativa Gyelnik = Flavoparmelia caperata
 neoconspersa Gyelnik = Xanthoparmelia neoconspersa
 nigropsoromifera T. H. Nash = Xanthoparmelia nigropsoromifera
 njalensis C. W. Dodge = Bulbothrix scortella
 novomexicana Gyelnik = Xanthoparmelia novomexicana
 obsessa Ach. = Myelochroa obsessa
 occidentalis Essl. = Xanthoparmelia occidentalis
 olivacea (L.) Ach. = Melanohalea olivacea
 olivaceoides Krog = Melanohalea olivaceoides
 olivaria (Ach.) Th. Fr. = Cetrelia olivetorum
 olivetorum Nyl. = Cetrelia olivetorum
 omphalodes subsp. glacialis Skult = P. skultii
 omphalodes subsp. pinnatifida (Kurok.) Skult = P. pinnatifida
 oncodes Tuck. (Fink 1935) Name not located in any available source (Esslinger & Tucker 2009)
 oostingii J. P. Dey = Hypotrachyna oostingii
 oregana Gyelnik = Hypogymnia physodes
 panniformis (Nyl.) Vainio = Montanelia panniformis
 perfoliata (Jacq.) Ach. (Mohr 1901) = misspelling of P. perforata
 perforata (Jacq.) Ach. = Parmotrema perforatum
 perlata (Hudson) Ach. = Parmotrema perlatum
 permaculata Hale = Parmotrema eurysacum
 perreticulata (Räsänen) Hale = Punctelia perreticulata
 pertusa (Schränk) Schaerer = Menegazzia terebrata
 phaea Tuck. (Fink 1935) = Physcia phaea
 physodes (L.) Ach. = Hypogymnia physodes
 piedmontensis Hale = Xanthoparmelia piedmontensis
 plittii Gyelnik = Xanthoparmelia plittii
 praesignis Nyl. = Flavopunctelia praesignis
 praesorediosa Nyl. = Parmotrema praesorediosum
 preperforata W. L. Culb. = Parmotrema hypoleucinum
 proboscidea Tayl. (Fink 1935) = Parmotrema crinitum (Hale & DePriest 1999)
 producta (Hale) J. P. Dey = Hypotrachyna producta
 proluxa (Ach.) Carroll = Neofuscelia pulla, but a misidentification for North America.
 prolongata Kurok. = Hypotrachyna prolongata
 pseudoborreri Asahina = Punctelia borreri
 psoromifera Kurok. = Xanthoparmelia psoromifera
 pubescens (L.) Vainio = Pseudephebe pubescens
 pulla Ach. = Xanthoparmelia pulla (Ach.) Crespo et al., but a misidentification for North America
 pulvinata Fée = Hypotrachyna pulvinata
 pustulifera Hale = Hypotrachyna pustulifera
 pustulosa Essl. = Xanthoparmelia pustulosa
 quercina (Willd.) Vainio North American reports are Parmelina coleae

rachista Hale = *Hypotrachyna prolongata*
 rampoddensis Nyl. = *Parmotrema rampoddense*
 recipienda Nyl. = *Parmotrema subcaperatum* (Kremp.) Hale., but a misidentification for North America
 reddenda Stirton = *Punctelia reddenda*
 relicina Fr. = *Relicina relicinula* (Müll. Arg.) Hale, but a misidentification for North America
 reparata Stirton = *Parmotrema cetratum*
 reticulata Taylor = *Parmotrema reticulatum*
 revoluta Flörke = *Hypotrachyna revoluta*
 rigida Lynge = *Parmotrema subrigidum* (N. Am. records only)
 robusta Degel. = *Parmotrema robustum*, but North American records are *Parmotrema gardneri*
 rockii Zahlbr. = *Hypotrachyna rockii*
 rudecta Ach. = *Punctelia rudecta*
 rutidota Hooker f. & Taylor = *Flavoparmelia rutidota*
 salacinifera Hale = *Canoparmelia salacinifera*
 santae-crucis Vainio = *Parmotrema praesorediosum*
 saximontana R. A. Anderson & W. A. Weber = *Montanelia saximontana*
 scortea (Ach.) Ach. (Fink 1935) = *Parmelina tiliacea* (Hoffm.) Hale, but an apparent misidentification for North America
 scortella Nyl. = *Bulbothrix scortella*
 semansiana W. L. Culb. & C. F. Culb. = *Punctelia graminicola*
 separata Th. Fr. = *Arctoparmelia separata*
 septentrionalis (Lynge) Ahti = *Melanohalea septentrionalis*
 sibirica Zahlbr. = *Allantoparmelia sibirica*
 silvestris Degel. = *Myelochroa aurulenta*
 simulans Hale = *Parmotrema simulans*
 sinuosa (Sm.) Ach. = *Hypotrachyna sinuosa*
 sipeana Gyelnik = *Menegazzia terebrata*
 sorediata (Ach.) Th. Fr. = *Montanelia sorediata*
 soredica Nyl. = *Flavopunctelia soredica*
 sorediosa Almb. = *Montanelia sorediata*
 sorocheila Vainio = *Hypotrachyna sorocheila*, but North American records apparently refer to *E. catawbiense*
 sphaerospora Nyl. (North American records) = *Pseudoparmelia uleana*
 sphaerosporella Müll. Arg. = *Ahtiana sphaerosporella*
 spumosa Asahina = *Parmelinopsis spumosa*
 stenophylla (Ach.) Du Rietz = *Xanthoparmelia stenophylla*
 stictica (Duby) Nyl. = *Punctelia stictica*
 stuppea Taylor = *Parmotrema stuppeum*
 stygia (L.) Ach. = *Melanelia stygia*
 subargentifera Nyl. = *Melanelixia subargentifera*
 subarnoldii Abbayes = *Parmotrema subarnoldii*, but a misidentification for North America north of Mexico
 subaurifera Nyl. = *Melanelixia subaurifera*
 subcapitata Nyl. ex Hasse = *Flavoparmelia subcapitata*
 subcentrifuga Oxner = *Arctoparmelia subcentrifuga*
 subcrinita auct. = *Parmotrema ultralucens*
 subcrinita Nyl. = *Parmotrema subtinctorium*
 subdecipiens Vainio = *Xanthoparmelia subdecipiens*
 subelegantula Essl. = *Melanohalea subelegantula*
 subhosseana Essl. = *Xanthoparmelia subhosseana*
 subinvoluta Hale = *Parmotrema rampoddense*
 subsidiosa (Müll. Arg.) C. W. Dodge = *Parmotrema subsidiosum*
 sublaevigata (Nyl.) Nyl. = *Hypotrachyna sublaevigata*, but a misidentification for North America (Hale 1979)
 submarginalis (Michaux) Nyl. (Fink 1935) = *Parmotrema submarginale* (Hale & DePriest 1999)

subobscura Vainio = *Hypogymnia subobscura*
 subolivacea Nyl. = *Melanohalea subolivacea*
 subpraesignis Nyl. = *Punctelia subpraesignis*
 subquercifolia Hue = *Myelochroa galbina*
 subramigera Gyelnik = *Xanthoparmelia subramigera*
 subrudecta Nyl. = *Punctelia subrudecta* (Nyl.) Krog, but a misidentification for North America (Lendemer & Hodkinson 2010)
 subrugata Kremp. = misidentification for North America
 substygia Räsänen North American reports are *Montanelia saximontana* or *M. secwepemc*
 subsumpta Nyl. = *Parmotrema subsumptum*
 subtinctoria Zahlbr. = *Parmotrema subtinctorium*
 sulphurata Nees & Flotow = *Parmotrema sulphuratum*
 sulphorosa (Tuck.) Fink (Fink 1935) = *Myelochroa galbina* (Hale & DePriest 1999)
 swinscowii Hale = *Parmelinopsis swinscowii*
 taractica Kremp. = *Xanthoparmelia taractica*, but see note there
 tasmanica Hooker f. & Taylor = *Xanthoparmelia tasmanica*
 texana Tuck. = *Canoparmelia texana*
 thysanota Kurok. = *Hypotrachyna thysanota*
 tinctina Maheu & A. Gillet = *Xanthoparmelia tinctina*, but not found in North America
 tinctorum Delise ex Nyl. = *Parmotrema tinctorum*
 trabeculata Ahti = *Melanohalea trabeculata*
 trichotera Hue = *Parmotrema perlatum*
 tuberculata Gyelnik = *Xanthoparmelia novomexicana*
 tubulosa (Schaerer) Bitter = *Hypogymnia tubulosa*
 tucsonensis T. H. Nash = *Xanthoparmelia tucsonensis*
 uleana Müll. Arg. = *Pseudoparmelia uleana*
 ulophyllodes (Vainio) Savicz = *Flavopunctelia soledica*
 ultralucens Krog = *Parmotrema ultralucens*
 verruculifera Nyl. = *Xanthoparmelia verruculifera*
 virginica Hale = *Hypotrachyna virginica*
 vittata (Ach.) Röhl. = *Hypogymnia vittata*
 weberi Hale = *Xanthoparmelia weberi*
 wyomingica (Gyelnik) Hale = *Xanthoparmelia wyomingica*
 xanthina (Müll. Arg.) Vainio = *Parmotrema xanthinum*
 xanthomela Nyl. (Fink 1935) Typographic error for *P. xanthomyela* = *Hypotrachyna endochlora* (Leighton) Hale, a misidentification for North America
 zollingeri Hepp = *Parmotrema zollingeri*

PARMELIELLA Müll. Arg.

appalachensis P. M. Jørg. (Jørgensen 2000c)
corallinoides (Hoffm.) Zahlbr.
pannosa (Sw.) Nyl. Syn.: *Pannaria pannosa*
parvula P. M. Jørg. (Jørgensen 2000c)
runderatula (Nyl.) Hasse
triptophylla (Ach.) Müll. Arg. Syn.: *Pannaria triptophylla*
arctophila (Th. Fr.) Malme = *Santessoniella arctophila* (Henssen 1997)
cheiroloba Müll. Arg. = *Fuscopannaria cheiroloba*
crossophylla (Tuck.) G. Merr. & Burnham = *Rockefelleria crossophylla*
cyanolepra (Tuck.) Herre = *Fuscopannaria cyanolepra*
mariana (Fr.) P. M. Jørg. & D. J. Galloway = *Lepidocollema marianum* (Ekman et al. 2014)
lepidiota (Sommerf.) Vainio = *Fuscopannaria praetermissa*
microphylla "(Sw.)" Müll. Arg. = *Vahliella leucophaea*
plumbea (Lightf.) Vainio = *Pectenium plumbea* (Ekman et al. 2014)
praetermissa (Nyl.) P. James = *Fuscopannaria praetermissa*
saubinetii (Mont.) Zahlbr. = *Vahliella saubinetii*

stellata (Tuck.) Zahlbr. = *Coccocarpia stellata*
stylophora (Vainio) P. M. Jørg. (Jørgensen 2000c) = *Lepidocollema stylophorum* (Ekman et al. 2014)

PARMELINA Hale

coleae Argüello & A. Crespo (Argüello et al. 2007a, 2007b)
yalungana (Zahlbr.) P. R. Nelson & Kepler (Nelson et al. 2013)
antillensis (Nyl.) Hale = *Parmotremopsis antillensis*
aurulenta (Tuck.) Hale = *Myelochroa aurulenta*
dissecta (Nyl.) Hale = *Hypotrachyna minarum*
galbina (Ach.) Hale = *Myelochroa galbina*
horrescens (Taylor) Hale = *Hypotrachyna horrescens*
metarevoluta (Asahina) Hale = *Myelochroa metarevoluta*
minarum (Vainio) Skorepa = *Hypotrachyna minarum*
obsessa (Ach.) Hale = *Myelochroa obsessa*
quercina (Willd.) Hale North American reports are *P. coleae*
spumosa (Asahina) Hale = *Hypotrachyna spumosa*
swinscowii (Hale) Hale = *Hypotrachyna swinscowii*
tiliacea (Hoffm.) Hale North American reports are misidentifications

PARMELINOPSIS Elix & Hale = **HYPOTRACHYNA** (Divakar et al. 2013)

cryptochlora (Vainio) Elix & Hale = *Hypotrachyna cryptochlora*
horrescens (Taylor) Elix & Hale = *Hypotrachyna horrescens*
minarum (Vainio) Elix & Hale = *Hypotrachyna minarum*
spumosa (Asahina) Elix & Hale = *Hypotrachyna spumosa*
swinscowii (Hale) Elix & Hale = *Hypotrachyna swinscowii*

PARMELIOPSIS Nyl.

ambigua (Wulfen) Nyl. Syn.: *Foraminella ambigua*
capitata R. C. Harris ex J. W. Hinds & P. L. Hinds (Hinds & Hinds 1998)
esorediata (Degel.) Nordnes (McCarthy et al. 2012)
hyperopta (Ach.) Arnold Syn.: *Foraminella hyperopta*
subambigua Gyelnik Syn.: *Foraminella subambigua*
aleurites (Ach.) Nyl. = *Imshaugia aleurites*
diffusa (Weber) Riddle = *P. hyperopta*
halei (Tuck.) Hale = *P. subambigua*
placorodia (Ach.) Nyl. = *Imshaugia placorodia*
PARMENTARIA Fée = **PYRENULA**
astroidea Fée = *Pyrenula astroidea*
[*Pleurotheliopsis australiensis* (Müll. Arg.) Zahlbr.] = ?
nana (Zahlbr.) R. C. Harris = *Anthracotheceium nanum*
rappii Zahlbr. = *Pyrenula leucostoma* Ach.
ravenelii (Tuck.) Müll. Arg. = *Pyrenula ravenelii*

PARMOTREMA A. Massal.

arnoldii (Du Rietz) Hale Syn.: *Parmelia arnoldii*
austrosinense (Zahlbr.) Hale Syn.: *Parmelia austrosinensis*
cetratum (Ach.) Hale Syn.: *Parmelia cetrata*, *P. herrei*, *Rimelia cetrata* (Blanco et al. 2005)
commensuratum (Hale) Hale Syn.: *Parmelia commensuratum*, *Rimelia commensuratum*
conferendum Hale Syn.: *Canomaculina conferenda*, *Rimeliella conferenda*
crinitum (Ach.) M. Choisy Syn.: *Parmelia crinita*, *Parmelia proboscidea*
cristiferum (Taylor) Hale Syn.: *Parmelia cristifera*
despectum Kurok. (Kurokawa 2001)
diffractaicum (Essl.) Hale Syn.: *Parmelia diffractaica*, *Rimelia diffractaica*
dilatatum (Vainio) Hale Syn.: *Parmelia dilatata*
dominicanum (Vainio) Hale Syn.: *Parmelia dominicana*
endosulphureum (Hillm.) Hale Syn.: *Parmelia endosulphurea*

eurysacum (Hue) Hale Syns.: *Parmelia eurysaca*, *P. permaculata*
gardneri (C. W. Dodge) Sérus. Syn.: *Parmelia robusta*
hababianum (Gyelnik) Hale Syn.: *Parmelia hababiana*
haitiense (Hale) Hale Syns.: *Parmelia haitiensis*, *Canomaculina haitiensis*
herrei (Zahlbr.) Spielmann & Marcelli (Marcelli et al. 2011)
hypoleucinum (J. Steiner) Hale Syn.: *Parmelia hypoleucina*
hypotropum (Nyl.) Hale Syns.: *Parmelia hypotropa*, *Parmelia hypotropa* var. *sorediata*, *P. cetrata* var. *hypotropoides*
internexum (Nyl.) Hale Syn.: *Parmelia internexa*
louisianae (Hale) Hale Syn.: *Parmelia louisianae*
margaritatum (Hue) Hale Syn.: *Parmelia margaritata*
mellissii (C. W. Dodge) Hale Syn.: *Parmelia mellissii*
mordenii (Hale) Hale Syn.: *Parmelia mordenii*
neotropicum Kurok. ex Hale Syns.: *Canomaculina neotropica*, *Rimeliella neotropica*
overeemii (Zahlbr.) Elix (Lendemer & Harris 2016)
perforatum (Jacq.) A. Massal. Syns.: *Parmelia perforata*, *P. erecta*, *P. hypotropoides*
perlatus (Hudson) M. Choisy Syns.: *Parmelia perlata*, *P. trichotera*
praesorediosum (Nyl.) Hale Syns.: *Parmelia praesorediosa*, *P. santae-crucis*
rampoddense (Nyl.) Hale Syns.: *Parmelia rampoddensis*, *P. subinvoluta*
reticulatum (Taylor) M. Choisy Syns.: *Parmelia reticulata*, *Rimelia reticulata*
rubifaciens (Hale) Hale
simulans (Hale) Hale Syns.: *Parmelia simulans*, *Rimelia simulans*
stuppeum (Taylor) Hale Syns.: *Parmelia stuppea*, *P. claudelii*, *P. maxima*
subisidiosum (Müll. Arg.) Hale Syns.: *Parmelia subisidiosa*, *Rimelia subisidiosa*
submarginale (Michaux) DePriest & B. Hale Syns.: *Parmelia michauxiana*, *P. epiclada* (DePriest & Hale 1998), *P. submarginalis*
subrigidum Egan (Egan et al. 2005)
subsumptum (Nyl.) Hale Syns.: *Canomaculina subsumpta*, *Rimeliella subsumpta*, *Parmelia subsumpta*
subtinctorium (Zahlbr.) Hale Syns.: *Canomaculina subtinctoria*, *Rimeliella subtinctoria*, *Parmelia subtinctoria*
sulphuratum (Nees & Flotow) Hale Syn.: *Parmelia sulphurata*
tinctorum (Delise ex Nyl.) Hale Syn.: *Parmelia tinctorum*
ultralucens (Krog) Hale Syns.: *Parmelia ultralucens*, *P. subcrinita* auct. non Nyl.
wrightii L. I. Ferraro & Elix (Seavey & Seavey 2012)
xanthinum (Müll. Arg.) Hale Syns.: *Parmelia xanthina*, *P. chrysantha*, *P. madagascariacea*
zollingeri (Hepp) Hale Syn.: *Parmelia zollingeri* Uncertain for North America (Lendemer & Harris 2016)
 chinense (“Osbeck”) Hale & Ahti = *P. perlatus* (Hawksworth 2004)
 crozalsianum (B. de Lesd. ex Harm.) Hawksworth = *Crespoa crozalsiana* (Lendemer & Hodgkinson 2012)
 madagascariaceum (Hue) Hale = *P. xanthinum* (Lendemer 2016a)
 michauxianum (Zahlbr.) Hale = *P. submarginale*
 ochrocrinitum Elix & J. Johnst. Erroneously mapped for North America (Michlig & Ferraro 2010)
 preperforatum (W. L. Culb.) Hale = *Parmotrema hypoleucinum* (Widhelm et al. 2017)
 rigidum (Lynge) Hale North American records are *P. subrigidum*
 robustum (Degel.) Hale North American records are *P. gardneri*

PARMOTREMOPSIS Elix & Hale

antillensis (Nyl.) Elix & Hale Syns.: *Parmelina antillensis*, *Parmelia antillensis*

PARMULARIA Nilson

brouardii B. de Lesd. = a *Lecanora* sp.

novomexicana B. de Lesd. = Identity uncertain

PARVOPLACA Arup, Søchting & Frödén (Arup et al. 2013)

nigroblastidiata Arup, Halici & Vondrák (Arup et al. 2015)
tirolensis (Zahlbr.) Arup, Søchting & Frödén Syn.: *Caloplaca subolivacea*, *C. tirolensis*

PATRICIOMYCES D. Hawksw.

***valentinianus** D. Hawks. (Cole & D. Hawksworth 2001)

PAULIA Fée

pyrenoides (Nyl.) Henssen Syn.: *Thyrea pyrenoides*

PECCANIA A. Massal. ex Arnold

arizonica Tuck. ex Herre

cernohorskyi (Servít) Scheiman-Cseika, Cseika & Guttová (Knudsen et al. 2017)

corallina Hazsl. (Knudsen et al. 2017)

coralloides (A. Massal.) A. Massal. (McCune 2017)

kansana (Tuck.) Forssell Syn.: *Omphalaria kansana*

kansuensis (H. Magn.) M. Schultz ined. (McCune et al. 2014b)

subnigra (B. de Lesd.) Wetmore Syn.: *Placynthium subnigrum*, *Synalissa subnigra*

texana (Tuck.) Wetmore Syn.: *Synalissa texana*

tiruncula (Nyl.) Henssen (Tretiach & Schultz 2007)

PECTENIA P. M. Jørg., L. Lindblom, Wedin & S. Ekman (Ekman et al. 2014)

plumbea (Lightf.) P. M. Jørg., L. Lindblom, Wedin & S. Ekman Syn.: *Degelia plumbea*

PELTIGERA Willd.

aphthosa (L.) Willd.

aquatica Miądl. & Lendemer (Miądlukowska et al. 2014b)

britannica (Gyelnik) Holt.-Hartw. & Tønsberg

canina (L.) Willd.

castanea Goward, Goffinet & Miądl. (Goffinet et al. 2003)

chionophila Goward & Goffinet (Goward & Goffinet 2000)

cinnamomea Goward

collina (Ach.) Schrader

degenii Gyelnik

didactyla (With.) J. R. Laundon

elisabethae Gyelnik

evansiana Gyelnik

extenuata (Nyl. ex Vainio) Lojka (Goffinet et al. 2003)

fibrilloides (Gyelnik) Vitik. (Vitikainen 2004)

friippii Holt.-Hartw. (Vitikainen 1994)

gowardii Lendemer & H. O'Brien (Lendemer & O'Brien 2011)

horizontalis (Hudson) Baumg.

hydrothyria Miądl. & Lutzoni Syn.: *Hydrothyria venosa* (Miądlukowska & Lutzoni 2000)

hymenina (Ach.) Delise

islandica Goward & Manoharan-Basil (Manoharan-Basil et al 2016)

kristinssonii Vitik.

latiloba Holt.-Hartw. (Holtan-Hartwig 2005)

lepidophora (Nyl. ex Vainio) Bitter

leucophlebia (Nyl.) Gyelnik

lyngei Gyelnik (Dillman et al. 2012)

malacea (Ach.) Funck

membranacea (Ach.) Nyl.

monticola Vitik. (Vitikainen 2004)

neckeri Hepp ex Müll. Arg.

neopolydactyla (Gyelnik) Gyelnik

pacifica Vitik.

phyllidiosa Goffinet & Miądl. (Goffinet & Miądlukowska 1999)

polydactylon (Necker) Hoffm.
polydactylon subsp. **udeghe** Magain, Miadl. & Sérus. (Magain et al. 2016)
ponojensis Gyelnik
praetextata (Flörke ex Sommerf.) Zopf
retifoveata Vitik.
rufescens (Weiss) Humb.
scabrosa Th. Fr.
scabrosella Holt.-Hartw.
seneca Magain, Miadl. & Sérus. (Magain et al. 2016)
tartarea (Llano) Vitik. (Vitikainen 2006)
venosa (L.) Hoffm.
 aphthosa f. complicata (Th. Fr.) Zahlbr. = *P. leucophlebia*
 aphthosa var. variolosa A. Massal. = *P. leucophlebia*
 avenosa Gyelnik
 canina var. rufescens (Weiss) Mudd = *P. rufescens*
 canina var. rufescens f. innovans (Körber) J. W. Thomson = *P. praetextata*
 canina var. spuria (Ach.) Schaerer = *P. didactyla*
 didactyla var. extenuata (Nyl. ex Vainio) Goffinet & Hastings (Goffinet & Hastings 1995) = *P. extenuata*
 dolichorrhiza (Nyl.) Nyl. = *P. polydactylon*
 erumpens (Taylor) Elenkin = *P. didactyla*
 hazslinszkyi Gyelnik = *P. extenuata*
 horizontalis (Hudson) Baumg. f. zopfii (Gyelnik) J. W. Thomson This name has often been used for *P. elisabethae*
 lactucifolia (With.) J. R. Laundon = *P. hymenina*
 occidentalis sensu Kristinsson = *P. kristinssonii*
 occidentalis (E. Dahl) Kristinsson = *P. neopolydactyla*
 polydactyla var. hymenina (Ach.) Flotow = *P. hymenina*
 polydactyla var. neopolydactyla Gyelnik = *P. neopolydactyla*
 praecanina Gyelnik (Gyelnik 1931) no type designated, identity uncertain
 pulverulenta (Taylor) Kremp. = *P. scabrosa* Th. Fr. for North American records
 scutata (Dickson) Duby = *P. collina*
 sorediata (Schaerer) Fink (Fink 1935) = *P. didactyla* (Vitikainen 1994)
 spuria (Ach.) DC. = *P. didactyla*
 variolosa (A. Massal.) Gyelnik = *P. leucophlebia*
 zopfii Gyelnik (Fink 1935) = *P. horizontalis* (Vitikainen 1994)

PELTULA Nyl.

bolanderi (Tuck.) Wetmore Syn.: *Heppia bolanderi*
clavata (Kremp.) Wetmore
corticola Büdel & R. Sant. (Büdel et al. 2007)
cylindrica Wetmore
euploca (Ach.) Poelt ex Ozenda & Clauzade Syns.: *Heppia euploca*, *H. guepinii*, *H. polyphylla*
farinosa Büdel (Büdel & Nash 2002)
michoacanensis (B. de Lesd.) Wetmore
obscurans (Nyl.) Gyelnik var. **obscurans**
obscurans var. **deserticola** (Zahlbr.) Wetmore Syn.: *Heppia deserticola*
obscurans var. **hassei** (Zahlbr.) Wetmore Syn.: *Heppia hassei*
omphaliza (Nyl.) Wetmore
patellata (Bagl.) Swinscow & Krog Syn.: *Heppia leptopholis*, *H. polyspora*, *H. terrena*
placodizans (Zahlbr.) Wetmore Syn.: *Heppia placodizans*
psammophila (Nyl.) Egea (Büdel & Nash 2002)
radicata (Ach.) Nyl.
richardsii (Herre) Wetmore Syn.: *Heppia richardsii*
sonorensis Büdel & T. H. Nash
tortuosa (Nees) Wetmore Syn.: *Heppia tortuosa*

zahlbruckneri (Hasse) Wetmore Syn.: *Heppia zahlbruckneri*
polyspora (Tuck.) Wetmore = *P. patellata*

PERFORARIA Müll. Arg. = **COCCOTREMA**
minuta Degel. = *Coccotrema pocillarium*

PERIDIOTHELIA D. Hawksw.
⁺**fuliguncta** (Norman) D. Hawksw. (Aptroot 2002d)
⁺**grandiuscula** (Anzi) D. Hawksw.

PERIGRAPHA Hafellner
***superveniens** (Nyl.) Hafellner (Diederich 2003)

PERTUSARIA DC.
alaskensis Erichsen
alpina Hepp ex Ahles
appalachensis Lendemer, R. C. Harris & Elix (Lendemer et al. 2008a)
atra Lynge
azulensis B. de Lesd. (Lumbsch & Nash 1999)
borealis Erichsen
brattiae Lumbsch & T. H. Nash (Lumbsch & Nash 1999)
bryontha (Ach.) Nyl.
californica Dibben
carneopallida (Nyl.) Anzi
chiodectonoides Bagl. ex A. Massal.
coccodes (Ach.) Nyl. (Tønsberg 1999a)
consocians Dibben
copiosa Erichsen
coriacea (Th. Fr.) Th. Fr.
epixantha R. C. Harris
expolita R. C. Harris
flavicunda Tuck.
flavocorallina Coppins & Muhr
geminipara (Th. Fr.) C. Knight ex Brodo Syn.: *Ochrolechia geminipara*
glaucomela (Tuck.) Nyl. Syn.: *Lecanora glaucomela*
globularis (Ach.) Tuck.
glomerata (Ach.) Schaerer
hakkodensis Yasuda ex Räsänen
hymenea (Ach.) Schaerer
iners R. C. Harris
islandica Bratt, Lumbsch & Schmitt (Schmitt et al. 2006)
lecanina Tuck.
leioplaca DC.
macounii (I. M. Lamb) Dibben Syn.: *Melanaria macounii*
mariae B. de Lesd. (Lumbsch & Nash 1999)
mccroryae Björk, Goward & T. Sprib. (Spribille et al. 2010)
moreliensis B. de Lesd. (Nash et al. 1998)
neolecania Lumbsch & T. H. Nash (Lendemer et al. 2013)
neoscotica I. M. Lamb
obruta R. C. Harris
occidentalis Bratt, Lumbsch & Schmitt (Schmitt et al. 2006)
octomela (Norman) Erichsen
oculata (Dickson) Th. Fr.
ostiolata Dibben
papillata (Ach.) Tuck.
paratuberculifera Dibben

plittiana Erichsen
propinqua Müll. Arg.
pruinifera Erichsen
pseudocorallina (Lilj.) Arnold
pupillaris (Nyl.) Th. Fr.
pustulata (Ach.) Duby
rhexostoma Nyl.
rigida Müll. Arg. (Seavey et al. 2017)
rubefacta Erichsen
saximontana Wetmore
sinusmexicani Dibben
sommerfeltii (Flörke ex Sommerf.) Fr.
stenhammarii Hellbom
subambigens Dibben
subobducens Nyl.
suboculata Brodo & Dibben
subpertusa Brodo
subrigida Müll. Arg. (Seavey et al. 2017)
sulcata Dibben
tejocotensis B. de Lesd. (Lumbsch et al. 1999)
tetrathalamia (Fée) Nyl.
texana Müll. Arg.
trochiscea Norman
valliculata Dibben
virensica R. C. Harris
wulfenioides B. de Lesd.
xanthodes Müll. Arg.
zeorina Erichsen
 albescens (Hudson) M. Choisy & Werner = *Lepra albescens*
 aleutensis Erichsen = *P. alaskensis*
 amara (Ach.) Nyl. = *Lepra amara*
 amara var. *flotowiana* (Flörke) Vainio = *Lepra amara*, at least for Europe
 ambigens (Nyl.) Tuck. = *P. subambigens*, for North American records
 andersonii Lendemer (Lendemer 2009c) = *Lepra andersoniae*
 arizonica Dibben = *P. tejocotensis*
 bryophaga Erichsen = *Ochrolechia bryophaga*
 canadensis Stirton = *P. pustulata*
 ceuthocarpa (Sm.) Turner & Borrer = *P. excludens*
 ceuthocarpoides Zahlbr. = *P. excludens*
 communis DC. (Mohr 1901) = *P. pertusa*, a misidentification for North America
 commutata Müll. Arg. (Lücking et al. 2011b) = *Lepra commutata*
 concentrica Erichsen Type not found. May be *Lepra multipunctoides*
 coriacea var. *obducens* (Nyl.) Vainio = *P. coriacea*
 dactylina (Ach.) Nyl. = *Lepra dactylina*
 diffusilis Erichsen = *P. glomerata*
 diluta Björk, G. Thor & T. B. Wheeler (Spribille et al. 2009) = *Gyalectaria diluta*
 discoidea (Pers.) Malme = *P. albescens*
 disticha Erichsen = *P. texana* (Dibben 1980)
 excludens Nyl. = *Lepra excludens*
 finkii Zahlbr. ex Fink = *P. rhexostoma*
 flavida (DC.) J. R. Laundon = a European taxon, not in North America
 floridana Dibben = *Lepra floridana*
 freyi Erichsen = *Megaspora verrucosa*
 globulifera (Turner) A. Massal. (Fink 1935) = *Lepra albescens*
 granulata (Ach.) Müll. Arg. = *P. wulfenioides* for North American records
 hemisphaerica (Flörke) Erichsen = a European taxon, not in North America

hultenii Erichsen = Ochrolechia subplicans subsp. hultenii
 hypothamnolica Dibben = Lepra hypothamnolica
 laevigata (Nyl.) Arnold non (Th. Fr.) Anzi = Variolaria trachythallina
 lecanina subsp. nigra Fink ex Hedrick = Lepra ophthalmiza
 leioterella Erichsen = P. macounii for North American reports
 leucostoma (Ach.) A. Massal. = P. leioplaca
 lutescens (Hoffm.) Lamy = P. flavida, but not in North America
 marginata Nyl. = P. propinqua
 microsticta (Sm. & Sow.) Erichsen = P. excludens
 monogona Nyl. = P. excludens for North American records
 multipuncta (Turner) Nyl. = misidentification for North America
 multipunctoides Dibben = Lepra multipunctoides
 nolens Nyl. = P. chiodectonoides
 ocellata (Wallr.) Körber = misidentification for North America
 ophthalmiza (Nyl.) Nyl. = Lepra ophthalmiza
 panyrga (Ach.) A. Massal. = Lepra panyrga
 pertusa (Weigel) Tuck. = misidentification for North America
 pocillum Cumm. (Eyerdam 1960) = apparent nomen nudum of uncertain identity
 protuberans (Sommerf. ex Th. Fr.) Th. Fr. = P. carneopallida
 pulchella Malme = Varicellaria velata (Archer & Messuti 1997)
 raesaenenii Erichsen = misidentification for North America
 rhodoleuca Th. Fr. = Ochrolechia rhodoleuca
 rubescens Erichsen = P. propinqua
 santamonicae Dibben = Varicellaria velata (Archer & Messuti 1997)
 scutellaris (Schaerer) Hue (Fink 1935) = Lepra albescens
 shenandoensis Hale & Dibben = P. plittiana (Lendemer & Harris 2012)
 subamplicata Nyl. Erroneous name created by typographic error, first appearing in Egan (1987)
 subdactylina Nyl. = Lepra subdactylina
 subplicans Nyl. = Ochrolechia subplicans
 subpupillaris Vězda = P. glaucomela
 tabuliformis Erichsen = P. leioplaca
 taeniata Erichsen = P. zeorina
 torquata Müll. Arg. = P. propinqua
 trachydactyla Vainio = identity uncertain, possibly an Ochrolechia sp.
 trachythallina Erichsen = Lepra trachythallina
 tuberculifera Nyl. = misidentification for North America; most specimens are P. paratuberculifera
 tuckermanii Erichsen = P. subobducens
 ventosa Malme = Lepra ventosa
 velata (Turner) Nyl. = Varicellaria velata (Schmitt et al. 2012)
 waghornei Hulting = Lepra waghornei
 wulfenii DC. = P. hymenea
 xanthostoma (Sommerf.) Fr. = Ochrolechia xanthostoma

PETRACTIS Fr.

clausa (Hoffm.) Kremp. (Dillman et al. 2012)
farlowii (Tuck. ex Nyl.) Vězda Syn.: Gyalecta farlowii

PEZIZELLA Fuckel

***epithallina** (W. Phillips & Plowr.) Sacc. (Diederich 2003)

PHACOGRAPHA Hafellner (Hafellner 2009)

***glaucomaria** (Nyl.) Hafellner Syns.: Leciographa glaucomaria, Opegrapha glaucomaria

PHACOPSIS Tul.

***cephalodioides** (Nyl.) Triebel & Rambold (Diederich 2003)
***doerfeltii** Alstrup & Scholz (Scholz 1998)

- ***fusca** (Triebe & Rambold) Diederich (Diederich 2003)
- ***oxyspora** (Tul.) Triebe & Rambold Syn.: Abrothallus oxysporus, Lecidea oxyspora, Nesolechia oxyspora
- ***thallicola** (A. Massal.) Triebe & Rambold Syn.: Nesolechia thallicola
- ***vulpina** Tul.
- *huuskonenii Räsänen = Raesaenenia huuskonenii (Divakar et al. 2015)
- *oxyspora var. defecta Triebe & Rambold = P. oxyspora
- *oxyspora var. fusca Triebe & Rambold = P. fusca

PHACOTHECIUM Trevisan

- ***varium** (Tul.) Trevisan Syn.: Opegrapha physciaria (Hafellner 2009)

PHAEOCALICIUM A.F.W. Schmidt

- +**betulinum** (Nyl.) Tibell (Selva & Tibell 1999)
- +**boreale** (Nyl.) Tibell (McCune et al. 2014b)
- +**compressulum** (Nyl. ex Vainio) A.F.W. Schmidt Syn.: Mycocalicium compressulum
- +**curtisii** (Tuck.) Tibell Syn.: Calicium curtisii
- +**flabelliforme** Tibell (Selva & Tibell 1999)
- +**interruptum** (Nyl.) Tibell (Hardman et al. 2016)
- +**matthewsianum** Selva & Tibell (Selva & Tibell 1999)
- +**minutissimum** (G. Merr.) Selva Syn.: Calicium minutissimum, Stenocybe minutissima (Selva & Tibell 1999)
- +**polyporaenum** (Nyl.) Tibell
- +**populneum** (Brond. ex Duby) A.F.W. Schmidt Syn.: Calicium populneum
- +**praecedens** (Nyl.) A.F.W. Schmidt
- +**tremulicola** (Norrlin ex Nyl.) Tibell Syn. Stenocybe tremulicola (Tibell 1996; Selva & Tibell 1999)

PHAEOGRAPHINA Müll. Arg.

- asteroides Fink = Phaeographis asteroides
- caesiopruinosa (Fée) Müll. Arg. = Platygramme caesiopruinosa
- columbina (Tuck.) Zahlbr. = Fissurina columbina
- explicans Fink = Leiorreuma explicans
- plurifera (Nyl.) Fink = Platygramme caesiopruinosa
- quassiiicola (Fée) Müll. Arg. = Thecaria quassiiicola
- scalpturata (Ach.) Müll. Arg. = Phaeographis scalpturata

PHAEOGRAPHIS Müll. Arg.

- arthonioides** (Vainio) Zahlbr.
- asteroides** (Fink) Lendemer Syn.: Phaeographina asteroides (Lendemer & Knudsen 2008b)
- atromaculata** (A. W. Archer) A. W. Archer (Lendemer & Knudsen 2008b)
- brasiliensis** (A. Massal.) Kalb & Matthes-Leicht (Archer 2006)
- delicatula** Common & Lücking (Lücking et al. 2011b)
- dendritica** (Ach.) Müll. Arg. Syn.: Graphis dendritica
- dendriticella** Müll. Arg.
- dividens** (Nyl.) Kr. P. Singh & Swarnalatha (Seavey et al. 2017)
- erumpens** (Nyl.) Müll. Arg.
- flavescens** Dal Forno & Eliasaro (Lücking et al. 2011b)
- haematites** (Fée) Müll. Arg.
- inconspicua** (Fée) Müll. Arg. (Lücking et al. 2011b)
- intricans** (Nyl.) Staiger Syn.: Sarcographa intricans (Staiger 2002)
- inusta** (Ach.) Müll. Arg.
- leiogrammodes** (Kremp.) Müll. Arg. (Lücking et al. 2011b)
- lobata** (Eschw.) Müll. Arg.
- major** (Kremp.) Lücking (Lücking et al. 2011b)
- multicolor** R. C. Harris
- nylanderii** (Vainio) Zahlbr. (Lücking et al. 2011b)

oricola Lendemer & R. C. Harris (Lendemer & Harris 2014a)
pseudostromatica F. Seavey & J. Seavey (Seavey et al. 2017)
punctiformis (Eschw.) Müll. Arg.
quadrifera (Nyl.) Staiger (Seavey et al. 2017)
radiata F. Seavey & J. Seavey (Seavey et al. 2017)
scalpturata (Ach.) Staiger (Lücking et al. 2011b)
schizoloma (Müll. Arg.) Müll. Arg. (Lücking et al. 2011b)
smithii (Leighton) B. de Lesd. (Tønsberg 1999a)
subfulgurata (Nyl.) Zahlbr.
tortuosa (Ach.) Müll. Arg.
 exaltata (Mont. & Bosch) Müll. Arg. = *Leiorreuma exaltatum*
 eulectra (Tuck.) Zahlbr. = *Graphis eulectra*
 lyellii (Sm.) Zahlbr. = misidentification for North America
 patellula (Fée) Müll. Arg. (Fink 1935) = *Leiorreuma patellulum*
 sericea (Eschw.) Müll. Arg. = *Leiorreuma sericea*
 sexloculata Fink = *P. arthonioides*
 subtigrina (Vainio) Zahlbr. = *P. brasiliensis*

PHAEOPHYSCIA Moberg

adiastola (Essl.) Essl. Syn.: *Physcia adiaastola*
ciliata (Hoffm.) Moberg Syns.: *Physcia ciliata*, *P. obscura* auct.
constipata (Norrlin & Nyl.) Moberg Syn.: *Physcia constipata*
decolor (Kashiw.) Essl.
endococcina (Körber) Moberg Syns.: *Physcia endococcina*, *P. lithotodes*, (?) *P. columbiana*
endococcinodes (Poelt) Essl. Syn.: *Physcia endococcinodes*
erythrocardia (Tuck.) Essl.
hirsuta (Mereschk.) Essl. Syn.: *Physcia hirsuta*
hirtella Essl.
hispidula (Ach.) Essl. Syns.: *Physcia hispidula*, *P. setosa*
insignis (Mereschk.) Moberg
kairamoi (Vainio) Moberg Syn.: *Physcia kairamoi*
leana (Tuck.) Essl. Syn.: *Physcia leana*
nigricans (Flörke) Moberg Syn.: *Physcia nigricans*
orbicularis (Necker) Moberg Syn.: *Physcia orbicularis*, *P. virella*
pusilloides (Zahlbr.) Essl. Syn.: *Physcia pusilloides*
rubropulchra (Degel.) Essl. Syns.: *Physcia orbicularis* f. *rubropulchra*, *P. endochrysea*, *P. rubropulchra*
sciastra (Ach.) Moberg Syns.: *Physcia sciastra*, *P. lithotea*
squarrosa Kashiw. (Moberg 1995) Syn: *Physcia lacinulata*, for North American records
 cernohorskyi (Nádv.) Essl. = *P. hirsuta* (Esslinger 2004b)
 chloantha (Ach.) Moberg = *Physciella chloantha*
 imbricata sensu Esslinger (1978) = *P. squarrosa*
 imbricata (Vainio) Essl. = *P. hispidula*
 melanchra (Hue) Hale = *Physciella melanchra*
 nepalensis (Poelt) D. D. Awasthi = *Physciella nepalensis*

PHAEOPYXIS Rambold & Triebel (Rambold & Triebel 1990)

***punctum** (A. Massal.) Rambold, Triebel & Coppins (Rambold & Triebel 1990)

PHAEORRHIZA H. Mayrhofer & Poelt

nimbosa (Fr.) H. Mayrhofer & Poelt Syns.: *Rinodina nimbosa*, *R. phaeocarpa*
sareptana (Tomin) H. Mayrhofer & Poelt

PHAEOSPORA Hepp ex Stein

***arctica** Horáková & Alstrup
 ***catolechiaie** Zopf (Zhurbenko 2014)

***parasitica** (Lönnr.) Arnold

***rimosicola** (Leighton ex Mudd) Hepp ex Stein Syn.: *Pyrenulella endococcoidea*

PHAEOSPOROBOLUS D. Hawksw. & Hafellner

***alpinus** R. Sant., Alstrup & D. Hawksw. = *Lichenostigma alpinum* (Ertz et al. 2014)

***fellhanerae** R. C. Harris & Lendemer (Harris & Lendemer 2009) = *Lichenostigma fellhanerae* (Ertz et al. 2014)

***usneae** D. Hawksw. & Hafellner = *Lichenostegma maureri* (Ertz et al. 2014)

PHAEOTREMA Müll. Arg.

californicum (Tuck.) Zahlbr. = *Thelotrema californicum*

meiospermum (Nyl.) Müll. Arg. = *Melanotrema meiospermum*

PHARCIDIA Körber = **STIGMIDIUM**

***dispersa** (J. Lahm ex Körber) Winter ex Rabenh. = *Zwackhiomyces dispersus*

***ephebes** Henssen = *Stigmidium ephebes*

***epicymatia** (Wallr.) Winter = a *Stigmidium* spp.

***parva** Henssen (see *Stigmidium*)

PHLOEOPECCANIA J. Steiner (Schultz & Büdel 2005)

major Henssen ined. (Schultz & Büdel 2005)

pulvinulina J. Steiner (Schultz & Büdel 2005)

PHLYCTELLA Kremp.

andensis Nyl.

PHLYCTIDIA Müll. Arg.

ludoviciensis Müll. Arg. = *Phlyctis boliviensis*

PHLYCTIS Wallr.

agelaea (Ach.) Flotow

argena (Ach.) Flotow

boliviensis Nyl. Syn.: *Phlyctidia ludoviciensis* (Lendemer & R. C. Harris 2014d)

petraea R. C. Harris, Muscavitch, Ladd & Lendemer (Muscavitch et al. 2017a)

speirea G. Merr.

ludoviciensis (Müll. Arg.) Lendemer (Lendemer 2005a) = *P. boliviensis*

willeyi Tuck. = *Leucodecton willeyi*

PHOEBUS R. C. Harris & Ladd (Harris & Ladd 2005, 2007)

hydrophobius R. C. Harris & Ladd (Harris & Ladd 2005, 2007)

PHOMA Fr.

***caloplacae** D. Hawksw. (Lawrey et al. 2012)

***fuliginosa** M. S. Cole & D. Hawksw. (Hawksworth & Cole 2004)

***grumantiana** Zhurb. & Diederich (Diederich et al. 2007)

***lobariae** Diederich & Etayo (Hafellner et al. 2002)

***lobariicola** Alstrup (Spribille et al. 2010)

***peltigerae** (P. Karsten) D. Hawksw. (Zhurbenko & Laursen 2003)

***puncteliae** Diederich & Lawrey (Lawrey et al. 2012)

***cladoniicola** Diederich, Kocourk. & Etayo (Diederich et al. 2007) = *Didymocyrtis cladoniicola* (Ertz et al. 2015a)

***cytophora** (Vouaux) D. Hawks. (Cole & D. Hawksworth 2001) = *Briancoppinsia cytophora* (Diederich et al. 2012; Kocourkova et al. 2012)

***physciicola** Keissler (Alstrup & Cole 1998) = *Didymocyrtis epiphyscia* (Ertz et al. 2015a)

***xanthomendozae** Diederich & Freebury (Lawrey et al. 2012) = *Didymocyrtis xanthomendozae* (Ertz et al. 2015a)

PHRAGMONAEVIA Rehm

*fuckelii Rehm = Corticifraga fuckelii

PHYLLISCUM Nyl.

demangeonii (Moug. & Mont.) Nyl. Syn.: Thyrea demangeonii
tenue Henssen

PHYLLOBLASTIA Vainio

fortuita Llop & Gómez-Bolea (Carlberg 2016)

PHYLLOPSORA Müll. Arg.

breviuscula (Nyl.) Müll. Arg. (Timdal 2011)
buettneri (Müll. Arg.) Zahlbr. (Timdal 2011)
confusa Swinscow & Krog
corallina (Eschw.) Müll. Arg. var. **corallina**
furfuracea (Pers.) Zahlbr. Syn.: Lecidea furfuracea
glabella (Nyl.) Gotth. Schneider
glaucella (Vainio) Timdal (Timdal 2008)
glaucescens (Nyl.) Gotth. Schneider (Seavey et al. 2017)
halei (Tuck.) Zahlbr. Syn.: Pannaria halei
isidiotyla (Vainio) Riddle (Brako 1991)
kalbii Brako (Brako 1991)
labriformis Timdal (Seavey & Seavey 2014a)
lacerata Timdal (Lücking et al. 2011b)
ochroxantha (Nyl.) Zahlbr. (Timdal 2008)
parvifolia (Pers.) Müll. Arg. var. **parvifolia** Syn.: Biatora parvifolia, Lecidea parvifolia
parvifoliella (Nyl.) Müll. Arg.
porphyromelaena (Vainio) Zahlbr. (Timdal 2011)
rappiana (Brako) Elix (Timdal 2011)
santensis (Tuck.) Swinscow & Krog (Timdal 2008) Syns.: Bacidia microphyllina auct., Lecidea santensis
buettneri (Müll. Arg.) Zahlbr. var. glauca (B. de Lesd.) Brako (Harris 1995a) = P. porphyromelaena
buettneri var. munda (Malme) Brako (Brako 1991) = P. buettneri
canoumbrina (Vainio) Brako Not known from North America; see note under Bacidia subgranulosa
corallina var. glaucella (Vainio) Brako (Brako 1991) = P. glaucella
corallina var. ochroxantha (Nyl.) Brako (Brako 1991) = P. ochroxantha
corallina var. rappiana Brako (Brako 1991) = P. rappiana
corallina var. santensis (Tuck.) Brako = P. santensis
parvifolia var. breviscula (Nyl.) Brako (Brako 1991) = P. breviscula
subcorallina Zahlbr. = Catinaria subcorallina
subfilamentosa Zahlbr. = Lecidea subfilamentosa

PHYSALOSPORA Niessl

*xanthoriae (Wedd.) Sacc. = misidentification for North America

PHYSCIA (Schreber) Michaux

adscendens (Fr.) H. Olivier
aipolia (Ehrh. ex Humb.) Fűrnr. var. **aipolia**
albinea (Ach.) Nyl.
alnophila (Vainio) Loht., Moberg, Myllys & Tehler (Lohtander et al. 2009)
americana G. Merr.
atrostriata Moberg
biziana (A. Massal.) Zahlbr.
caesia (Hoffm.) Hampe ex Fűrnr.
clementei (Sm.) Lynge

convexa Müll. Arg.
crispa Nyl. Many old records using this name are actually *P. atrostriata*
dakotensis Essl. (Esslinger 2004a)
dimidiata (Arnold) Nyl.
dubia (Hoffm.) Lettau
duplicorticata W. A. Weber & J. W. Thomson
erumpens Moberg (Moberg 1997)
halei J. W. Thomson
leptalea (Ach.) DC.
magnussonii Frey
mexicana B. de Lesd.
millegrana Degel.
montana B. de Lesd.
nashii Moberg (Moberg 1997)
neglecta Moberg (Tucker 2014)
neogaea R. C. Harris
phaea (Tuck.) J. W. Thomson Syn.: *Parmelia phaea*
poncinsii Hue (Harris 1995a)
pseudospeciosa J. W. Thomson
pumilior R. C. Harris
solistella Essl. & Egan (Esslinger & Egan 1996)
sorediosa (Vainio) Lynge
stellaris (L.) Nyl.
subalbinea Nyl. (Lohtander et al. 2009)
subtilis Degel.
tenella (Scop.) DC.
tenella subsp. **marina** (A. Nyl.) D. Hawksw.
tenellula Moberg (Moberg 1997)
thomsoniana Essl. (Esslinger 2017)
tribacia (Ach.) Nyl.
undulata Moberg (Harris 1995a)
villosula Moberg (Tucker 2014)
adglutinata (Flörke) Nyl. = *Hyperphyscia adglutinata*
adiastola Essl. = *Phaeophyscia adiaastola*
aegialita (Afzel. ex Ach.) B. J. Moore = *Dirinaria aegialita*
aipolia var. *alnophila* (Vainio) Lynge = *P. alnophila*
alba (Fée) Müll. Arg. = misidentification for North America
alba var. *obsessa* (Mont.) J. W. Thomson = *P. integrata* Nyl., but a misidentification for North America
albicans sensu J. W. Thomson = *P. atrostriata* for North American reports
albicans (Pers.) J. W. Thomson = *Heterodermia albicans*
aquila (Ach.) Nyl. var. *detonsa* (Fr.) Tuck. (Claassen 1912) = *Anaptychia palmulata*
aspera H. Magn. = *Dirinaria aegialita*
astroidea (Clem.) Nyl. = *P. clementei*
cainii Räsänen = *P. aipolia*
callosa sensu Thomson (1963) = *P. tribacia* (Moberg 1997)
callosa Nyl. = *P. phaea*
cascadensis H. Magn. = *P. phaea* (Moberg 1997)
cernohorskyi Nádv. = *Phaeophyscia cernohorskyi*
chloantha (Ach.) Vainio = *Physciella chloantha*
ciliata (Hoffm.) Du Rietz = *Phaeophyscia ciliata*
columbiana B. de Lesd. = (?) *Phaeophyscia endococcina*, but the type not seen
comosa (Eschw.) Nyl. = *Heterodermia comosa*
constipata Norrlin & Nyl. = *Phaeophyscia constipata*
convexella Moberg (Moberg 1997, in map) Erroneous report for the United States (Moberg 2002)
culbersonii Thoms. (nomen nudum) = *Phaeophyscia squarrosa*
detersa (Nyl.) Nyl. = *Physconia detersa*

elaeina (Sm.) A. L. Sm. = *Hyperphyscia adglutinata*
 endochrysea (Hampe) Nyl. = *Phaeophyscia rubropulchra*
 endococcina (Körber) Th. Fr. = *Phaeophyscia endococcina*
 endococcinodes Poelt = *Phaeophyscia endococcinodes*
 fragilescens Zahlbr. = *P. solediosa*
 frostii (Tuck.) Zahlbr. = *Dirinaria frostii*
 grisea (Lam.) Zahlbr. = *Physconia grisea*, but a misidentification for North America
 hirsuta Mereschk. = *Phaeophyscia hirsuta*
 hispida auct. = *P. tenella*
 hispidula (Ach.) Frey = *Phaeophyscia hispidula*
 hypoleuca (Ach.) Tuck. = *Heterodermia hypoleuca*
 intermedia Vainio = *P. dubia*
 imbricata Vainio = *Phaeophyscia hispidula*
 isidiigera (Zahlbr.) Fink = *Physconia isidiigera*
 kairamoi Vainio = *Phaeophyscia kairamoi*
 lacinulata Müll. Arg. = *Phaeophyscia squarrosa*, for North American records
 leana (Tuck.) Tuck. = *Phaeophyscia leana*
 leucoleiptes (Tuck.) Lettau = *Physconia leucoleiptes*
 lithotea "(Ach.) Nyl." = *Phaeophyscia sciastra*
 lithotodes Nyl. = *Phaeophyscia endococcina*
 luganensis Mereschk. = *Physciella chloantha*
 melanchra Hue = *Physciella melanchra*
 melops Dufour = *P. phaea*
 minor (Fée) Vainio = *Hyperphyscia minor*
 muscigena (Ach.) Nyl. = *Physconia muscigena*
 nepalensis Poelt = *Physciella nepalensis*
 nigricans (Flörke) Stizenb. = *Phaeophyscia nigricans*
 obscura auct. = *Phaeophyscia ciliata*
 obscura var. endochrysea (Hampe) Nyl. (Claassen 1912) North American reports are *Phaeophyscia rubropulchra*
 obsessa (Mont.) Nyl. = *P. integrata*, but a misidentification for North America
 orbicularis (Necker) Poetsch = *Phaeophyscia orbicularis*
 orbicularis f. rubropulchra Degel. = *Phaeophyscia rubropulchra*
 picta (Sw.) Nyl. = *Dirinaria picta*
 pulverulenta auct. non (Schreber) Fűrnr. = *Physconia distorta*, but a misidentification for North America
 pusilloides Zahlbr. = *Phaeophyscia pusilloides*
 purpurascens Vainio = *Dirinaria purpurascens*
 rubropulchra (Degel.) Moberg = *Phaeophyscia rubropulchra*
 sciastra (Ach.) Du Rietz = *Phaeophyscia sciastra*
 semipinnata (J. F. Gmelin) Moberg = *P. leptalea*
 setosa (Ach.) Nyl. = *Phaeophyscia hispidula*
 speciosa (Wulfen) Nyl. = *Heterodermia speciosa*
 subobscura Nyl. = *P. tenella* subsp. *marina*
 syncolla Tuck. ex Nyl. = *Hyperphyscia syncolla*
 teretiuscula (Ach.) Lynge = *P. dubia*
 tribacoides auct. non Nyl. = *P. americana*
 venusta (Ach.) Nyl. = *Physconia venusta*, but a misidentification for North America
 virella (Ach.) Flagey (Fink 1935) = *Phaeophyscia orbicularis*
 wainioi Räsänen = *P. subalbinea*
 wrightii Tuck. = North American report is *Heterodermia diademata* (Esslinger & Tucker 2009)

PHYSICIELLA Essl.

chloantha (Ach.) Essl. Syn.: *Physcia chloantha*, *P. luganensis*, *Phaeophyscia chloantha*
melanchra (Hue) Essl. Syn.: *Physcia melanchra*, *Phaeophyscia melanchra*
nepalensis (Poelt) Essl. Syn.: *Physcia nepalensis*, *Phaeophyscia nepalensis*

PHYSCIOPSIS M. Choisy = **HYPERPHYSCIA**

adglutinata (Flörke) M. Choisy = *Hyperphyscia adglutinata*

elaeina (Sm.) Poelt = *Hyperphyscia adglutinata*

minor (Fée) B. J. Moore = *Hyperphyscia minor*

syncolla (Tuck. ex Nyl.) Poelt = *Hyperphyscia syncolla*

PHYSCONIA Poelt

americana Essl. (Esslinger 1994)

californica Essl. (Esslinger 2000b)

detersa (Nyl.) Poelt Syn.: *Physcia detersa*

elegantula Essl.

enteroxantha (Nyl.) Poelt

fallax Essl. (Esslinger 2000b)

grumosa Kashiw. & Poelt (Esslinger & Dillman 2010)

isidiigera (Zahlbr.) Essl.

isidiomuscigena Essl. (Esslinger 2000b)

labrata Essl., McCune & Haughland (Esslinger et al. 2017)

leucoleiptes (Tuck.) Essl. Syn.: *Physcia leucoleiptes*

muscigena (Ach.) Poelt Syn.: *Physcia muscigena*

perisidiosa (Erichsen) Moberg

subpallida Essl.

distorta (With.) J. R. Laundon = misidentification for North America

farrea sensu Poelt = *P. perisidiosa* [*Parmelia farrea* Ach. = *Physconia grisea*]

grisea (Lam.) Poelt = misidentification for North America

kurokawae Kashiw. = *P. leucoleiptes* (Esslinger 2002d)

pulverulacea Moberg = *P. distorta*, but a misidentification for North America

pulverulenta auct. non (Schreber) Poelt = *P. distorta*, but a misidentification for North America

thomsonii Essl. = *Anaptychia elbursiana*

PHYSMA A. Massal.

byrsaeum (Ach.) Müll. Arg. ("byrsinum")

cataractaecola B. de Lesd.

luridum (Mont.) Tuck. = *Pannaria lurida*

PHYTOCONIS Bory

ericetorum (Pers. : Fr.) Redhead & Kuyper = *Lichenomphalia umbellifera*

luteovitellina (Pilát & Nannf.) Redhead & Kuyper = *Lichenomphalia alpina*

velutina (Quélet) Redhead & Kuyper = *Lichenomphalia velutina*

viridis (Ach.) Redhead & Kuyper = *Lichenomphalia hudsoniana*

PICCOLIA A. Massal. (Hafellner 1995)

conspersa (Fée) Vainio Syn.: *Biatorella conspersa*, *Heterothecium conspersum* (Hafellner 1995)

nannaria (Tuck.) Lendemer & Beeching Syns.: *Biatorella nannaria*, *Heterothecium nannarium* (Knudsen & Lendemer 2007)

ochrophora (Nyl.) Hafellner Syn.: *Biatorella ochrophora*, *Lecidea ochrophora*, *Strangospora ochrophora* (Hafellner 2004d)

PILOPHORUS Th. Fr.

acicularis (Ach.) Th. Fr.

cereolus (Ach.) Th. Fr. in Hellbom

clavatus Th. Fr. Syn.: *P. hallii*

dovreensis (Nyl.) Timdal, Hertel & Rambold Syn.: *Lecidea pallida*

fibula (Tuck.) Th. Fr.

nigricaulis M. Satô

robustus Th. Fr.

vegae Krog
hallii (Tuck.) Vainio = *P. clavatus*
pallidus (Th. Fr.) Timdal = *P. dovrensis*

PLACIDIOPSIS Beltr.

cinerascens (Nyl.) Breuss
minor R. C. Harris
pseudocinerea Breuss
cervinula (Nyl.) Vainio = misidentification for North America

PLACIDIUM A. Massal. (Breuss 1996)

acarosporoides (Zahlbr.) Breuss (Breuss & Bratt 2000) Syns.: *Catapyrenium acarosporoides*, *Dermatocarpon acarosporoides*, *D. novomexicanum*, *Endopyrenium bajadanae*, *E. novomexicanum*, *Heteropladidium acarosporoides*
andicola (Breuss) Breuss Syn.: *Catapyrenium andicolum*
arboreum (Schwein. ex E. Michener) Lendemer Syns.: *Catapyrenium tuckermanii*, *Dermatocarpon tuckermanii*, *Dermatocarpon arboretum*, *Endocarpon arboretum*, *E. tuckermanii*, *Endopyrenium tuckermanii* (Lendemer & Yahr 2004)
californicum Breuss (Breuss & Bratt 2000)
chilense (Räsänen) Breuss Syn.: *Catapyrenium chilense*
figens (Breuss) Breuss (Breuss 2002d)
imbecillum (Breuss) Breuss (McCune & Rosentreter 2007)
lachneum (Ach.) B. de Lesd. Syn.: *Catapyrenium lachneum*
micheelii A. Massal. Syns.: *Catapyrenium micheelii*, *Dermatocarpon micheelii*
norvegicum (Breuss) Breuss Syn.: *Catapyrenium norvegicum*
pilosellum (Breuss) Breuss (Nash et al. 1998)
podolepis (Breuss) M. Prieto (Prieto et al. 2012) Syns.: *Catapyrenium podolepis*, *Heteropladidium podolepis*
rufescens (Ach.) A. Massal. Syns.: *Catapyrenium rufescens*, *Dermatocarpon rufescens*
squamulosum (Ach.) Breuss Syns.: *Catapyrenium squamulosum*, *Dermatocarpon hepaticum* auct. non (Ach.) Th. Fr.
yoshimurae (H. Harada) Breuss (McCune 2017)
lacinulatum (Ach.) Breuss = *Clavascidium lacinulatum*
lacinulatum var. **atrans** Breuss (Lendemer 2004c) = *Clavascidium lacinulatum* var. **atrans**
lacinulatum var. **erythrostratum** Breuss (Breuss 2000) = *Clavascidium lacinulatum* var. **erythrostratum**
tuckermanii (Ravenel ex Mont.) Breuss = *P. arboreum*
umbrinum (Breuss) Prieto & Breuss (Gueidan et al. 2009) = *Clavascidium umbrinum*

PLACOCARPUS Trevisan

#americanus K. Knudsen, Breuss, & Kocourk. (Knudsen et al. 2009)
schaereri (Fr.) Breuss = misidentification for North America (McCune et al. 2014b)

PLACODIUM F. H. Wigg.

aurantiacum (Lightf.) Hepp (Claassen 1912) = *Gyalolechia flavorubescens*
bolacina Tuck. = *Polycauliona bolacina*
cerinum (Hedw.) Nägeli ex Hepp (Claassen 1912) = *Caloplaca cerina*
cinnabarinum (Ach.) Nyl. = *Caloplaca cinnabarina*
cladodes Tuck. = *Pachypeltis cladodes*
coralloides Tuck. = *Polycauliona coralloides*
elegans (Link) DC = *Rusavskia elegans*
elegans var. **trachyphyllum** Tuck. = *Xanthomendoza trachyphylla*
ferrugineum (Hudson) Hepp = *Blastenia ferruginea*
ferrugineum f. **bolanderi** Tuck. = *Polycauliona luteominia* var. **bolanderi**
fulgens (Sw.) DC. = *Gyalolechia fulgens*
galactophylla Tuck. = *Squamulea galactophylla*
microphyllum Tuck. = *Caloplaca microphyllina*

peliohyllum Tuck. = Caloplaca peliohylla
pyraceum (Ach.) Fink (Claassen 1917) = Athallia pyracea
vitellinum (Hoffm.) Hepp (Claassen 1912) = Candelariella vitellina

PLACOMARONEA Räsänen

mendozae (Räsänen) M. Westberg (Westberg 2004a)

PLACOPSIS (Nyl.) Lindsay

cribellans (Nyl.) Räsänen

fusciculoides D. J. Galloway (Galloway 2005)

gelida (L.) Lindsay Syn.: Lecanora gelida

lambii Hertel & V. Wirth (Moberg & Carlin 1996; Brodo et al. 2001)

roseonigra Brodo

effusa I. M. Lamb = misidentification for North America

PLACOPYRENIUM Breuss

bucekii (Nádv. & Servít) Breuss (Breuss 2009)

caeruleopulvinum (J.W. Thomson) Breuss (Breuss 2002e) Syn.: Catapyrenium caeruleopulvinum

canellum (Nyl.) Gueidan & Cl. Roux Syn.: Verrucaria canella (Navarro-Rosínes et al. 2007)

coloradoense Breuss Syn.: Catapyrenium schaeferi sensu Thomson (Breuss 2009)

conforme Breuss (Breuss 2009)

fuscillum (Turner) Gueidan & Cl. Roux Syn.: Verrucaria fuscilla (Navarro-Rosínes et al. 2007)

heppioides (Zahlbr.) Breuss Syn.: Catapyrenium heppioides, Dermatocarpon heppioides (Breuss 2002e)

lecideoides (A. Massal.) Gueidan & Cl. roux Syn.: Dermatocarpon lecideoides, Verrucaria lecideoides (Navarro-Rosínes et al. 2007)

#noxium Breuss (Breuss 1998)

stanfordii (Herre) K. Knudsen Syns.: Catapyrenium zahlbruckneri, Dermatocarpon zahlbruckneri, Verrucaria stanfordii (Knudsen & Lendemer 2006)

zahlbruckneri (Hasse) Breuss (Breuss 2002e) = P. stanfordii

PLACYNTHIELLA Elenkin

dasaea (Stirton) Tønsberg (Tønsberg 1997 [1998])

hyporhoda (Th. Fr.) Coppins & P. James Syn.: Saccomorpha hyporhoda

icmalea (Ach.) Coppins & P. James Syn.: Saccomorpha icmalea

knudsenii Lendemer (Lendemer 2004d)

oligotropha (J. R. Laundon) Coppins & P. James Syns.: Saccomorpha oligotropha, Lecidea oligotropha

uliginosa (Schrader) Coppins & P. James Syns.: Saccomorpha uliginosa, Lecidea uliginosa, L. humosa

PLACYNTHIUM (Ach.) Gray

asperellum (Ach.) Trevisan

flabellum (Tuck.) Zahlbr.

nigrum (Hudson) Gray Syn.: Pannaria nigra

pannariellum (Nyl.) H. Magn. (Spribille et al. 2010)

petersii (Nyl.) Burnham Syn.: Pannaria petersii, Pterygium petersii

stenophyllum (Tuck.) Fink var **stenophyllum** Syn.: Pannaria stenophylla

stenophyllum var. **isidiatum** Henssen

subradiatum (Nyl.) Arnold

tantaleum (Hepp) Hue

aspratile (Ach.) Henssen = P. asperellum

dubium Herre = Massalongia microphylliza

microphyllizum (Nyl. ex Hasse) Hasse = Massalongia microphylliza

pannariellum (Nyl.) H. Magn. Reported from Greenland and Iceland but not the U. S. or Canada as yet

rosulans (Th. Fr.) Zahlbr. Reported from Greenland but not the U. S. or Canada as yet

subnigrum B. de Lesd = Peccania subnigra

PLAGIOCARPA R. C. Harris = **LITHOTHELIUM**

hyalospora (Nyl.) R. C. Harris = *Lithothelium hyalosporum*
illota (Nyl.) R. C. Harris = *Lithothelium illotum*
langloisii R. C. Harris = *Lithothelium illotum*
macrospora R. C. Harris = *Lithothelium macrosporum*
phaeospora R. C. Harris = *Lithothelium phaeosporum*
septemseptata R. C. Harris = *Lithothelium septemseptatum*

PLATISMATIA W. L. Culb. & C. F. Culb.

glauca (L.) W. L. Culb. & C. F. Culb. Syn.: *Cetraria glauca*
herrei (Imshaug) W. L. Culb. & C. F. Culb. Syn.: *Cetraria herrei*, *C. tuckermanii* Herre non Oakes
lacunosa (Ach.) W. L. Culb. & C. F. Culb. Syn.: *Cetraria lacunosa*
norvegica (Lynge) W. L. Culb. & C. F. Culb. Syn.: *Cetraria norvegica*
stenophylla (Tuck.) W. L. Culb. & C. F. Culb. Syn.: *Cetraria stenophylla*
tuckermanii (Oakes) W. L. Culb. & C. F. Culb. Syn.: *Cetraria atlantica*, *C. lacunosa* var. *atlantica*, *C. tuckermanii* Oakes non Herre
wheeleri Goward, Altermann & Björk (Lumbsch et al. 2011)

PLATYGRAMME Fée

caesiopruinosa (Fée) Fée Syn.: *Phaeographina caesiopruinosa*, *P. plurifera* (Staiger 2002)
coccinea F. Seavey & J. Seavey (Seavey & Seavey 2014a)
elegantula F. Seavey & J. Seavey (Seavey et al. 2017)
pachnodes (Fée) E. Tripp & Lendemer (Tripp & Lendemer 2010, Lücking et al. 2011b)
praestans (Müll. Arg.) Staiger (Tripp & Lendemer 2010, Lücking et al. 2011b)

PLATYGRAPHA Nyl.

californica (Tuck.) Nyl. = *Sigridea californica*
hypothallina Zahlbr. = *Lecanographa hypothallina*
ocellata Nyl. = *Mazosia ocellata*
plurilocularis Zahlbr. = *Paraschismatomma ochroleucum* (Ertz & Tehler 2011)
ravenelii Tuck. = *Opegrapha ravenelii*
subattingens Nyl. = *Lecanactis epileuca*

PLATYGRAPHOPSIS Müll. Arg.

interrupta (Fée) Müll. Arg.

PLATYTHECIUM Staiger

colliculosum (Mont.) Hale Syn.: *Graphina colliculosa* (Tripp et al. 2010)
floridanum (Tuck.) Lendemer Syn.: *Graphis floridana*, *Graphina floridana* (Lendemer & Knudsen 2008)
grammitis (Fée) Staiger (Staiger 2002)

PLECTOCARPON Fée

***cladoniae** R. Sant. (Ertz et al. 2005)
***lambinonii** Diederich & Etayo (Ertz et al. 2005)
***lichenum** (Sommerf.) D. Hawksw.
***nashii** Hafellner (Hafellner et al. 2002)
***nephromeum** (Norman) Sant. (Goward et al. 1996)
***peltigerae** Zhurb., Ertz, Diederich & Miädl. (Ertz et al. 2003)
***scrobiculatae** Diederich & Etayo (Ertz et al. 2005)
***triebeliae** Diederich & Ertz (Ertz et al. 2005)

PLEOPSISIDIUM Körber

chlorophanum (Wahlenb.) Zopf Syn.: *Acarospora chlorophana*, *A. erythrophora*, *A. texana*, *A. weldensis*

flavum (Bellardi) Körber Syns.: *Acarospora flava*, *A. oxytona*
oxytonum (Ach.) Rabenh. = *P. flavum*
stenosporum (Stizenb. ex Hasse) K. Knudsen (Knudsen 2011c) = *P. flavum* (Knudsen & Kocourková 2013)

PLEUROTHELIOPSIS Zahlbr. = **PYRENULA**
australiensis (Müll. Arg.) Zahlbr. = *Anthracotheceium australiensis*
nana Zahlbr. = *Anthracotheceium australiensis*

PLEUROTREMA Müll. Arg. = **LITHOTHELIUM**
anacardii (Vainio) R. C. Harris nom. inval. = *Anisomeridium terminatum*
inspersum Müll. Arg. = *Anisomeridium americanum*, not present in North America? (Harris 1995)
solivagum Degel. = *Lithothelium hyalospora*

POELTINULA Hafellner

cerebrina (DC.) Hafellner
POLYBLASTIA A. Massal.
albida Arnold (Thomson 1997)
amota Arnold (McCune et al. 2014b)
bryophila Lönnr.
cucurbitula J. W. Thomson & B. M. Murray
cupularis A. Massal. Syn.: *Verrucaria intercedens*
epigaea A. Massal.
exalbida (Nyl.) Zahlbr. (Dillman et al. 2012)
gothica Th. Fr.
hyperborea Th. Fr.
hyperborea var. **macrospora** Lynge
obsoleta Arnold
quartzina Lynge (Spribille et al. 2010)
sendtneri Kremp.
septentrionalis Lynge
cruenta (Körber) P. James & Swinscow = *Sporodictyon cruentum*
gelatinosa (Ach.) Th. Fr. = *Agonimia gelatinosa*
henscheliana (Körber) Lönnr. (Fink 1935) = *Sporodictyon cruentum* (Vitikainen et al. 1997)
integrascens (Nyl.) Vainio = *P. hyperborea*
intercedens (Nyl.) Lönnr. = *P. cupularis*
melaspora (Taylor) Zahlbr. = *Henrica melaspora* (Savić & Tibell 2008)
sommerfeltii Lynge = *Sporodictyon terrestre*
terrestris Th. Fr. = *Sporodictyon terrestre*
theleodes (Sommerf.) Th. Fr. = *Henrica theleodes* (Savić & Tibell 2008)
tristricula (Nyl.) Arnold = *Agonimia tristricula*

POLYBLASTIOPSIS Zahlbr. = **JULELLA**
dealbens Fink = *Dictyomeridium amylosporum*
⁺*dispora* (Müll. Arg.) Zahlbr. = *Julella dispora*
⁺*fallaciosa* (Stizenb. ex Arnold) Zahlbr. = *Julella fallaciosa*
fallax (Nyl.) Fink = *Arthopyrenia analepta*
floridana Fink = *Porina nuculastrum*
inductula (Nyl.) Fink = *Thelenella inductula*
intrusa (Nyl.) Zahlbr. = a *Laurera* sp., not in North America
⁺*lactea* (A. Massal.) Zahlbr. = *Julella lactea*
⁺*quercicola* Brodo = *Julella fallaciosa*
⁺*rappii* Zahlbr. = *Julella geminella*
⁺*sublactea* (Nyl.) Zahlbr. = *Julella sublactaea*

POLYCAULIONA Hue (Arup et al. 2013)

ascendens (S. Y. Kondr.) Frödén, Arup, & Søchting Syn.: *Xanthoria ascendens*
bolacina (Tuck.) Arup, Frödén & Søchting Syn.: *Caloplaca bolacina*, *Placodium bolacinum*
brattiae (W. A. Weber) Arup, Frödén & Søchting Syn.: *Caloplaca brattiae*
candelaria (L.) Frödén, Arup, & Søchting Syn.: *Teloschistes candelarius*, *Xanthoria candelaria*
coralloides (Tuck.) Hue Syn.: *Caloplaca coralloides*, *Placodium coralloides*
flavogranulosa (Arup) Arup, Frödén & Søchting Syn.: *Caloplaca flavogranulosa*
ignea (Arup) Arup, Frödén & Søchting Syn.: *Caloplaca ignea*
impolita (Arup) Arup, Frödén & Søchting Syn.: *Caloplaca impolita*
inconspecta (Arup) Arup, Frödén & Søchting Syn.: *Caloplaca inconspecta*
ludificans (Arup) Arup, Frödén & Søchting Syn.: *Caloplaca ludificans*
luteominia (Tuck.) Arup, Frödén & Søchting var. **luteominia** Syn.: *Blastenia luteominia*, *Caloplaca laeta*, *C. luteominia*, *Placodium luteominium*
luteominia var. **bolanderi** (Tuck.) Arup, Frödén & Søchting Syn.: *Caloplaca bolanderi*, *Placodium ferrugineum* f. *bolanderi*
nashii (Nav.-Ros., Gaya & Hladún) Arup, Frödén & Søchting Syn.: *Caloplaca nashii*
phlogina (Ach.) Arup, Frödén & Søchting Syn.: *Caloplaca phlogina*
pollinarioides (L. Lindblom & D.M. Wright) Frödén, Arup, & Søchting Syn.: *Xanthoria pollinarioides*
polycarpa (Hoffm.) Frödén, Arup, & Søchting Syn.: *Teloschistes polycarpus* T. *ramulosus*, *Xanthoria polycarpa*, *X. ramulosa*
rosei (Hasse) Arup, Frödén & Søchting Syn.: *Caloplaca rosei*
stellata (Wetmore & Kärnefelt) Arup, Frödén & Søchting Syn.: *Caloplaca stellata*
tenax (L. Lindblom) Frödén, Arup, & Søchting Syn.: *Xanthoria tenax*
tenuiloba (L. Lindblom) Frödén, Arup, & Søchting Syn.: *Xanthoria tenuiloba*
verruculifera (Vainio) Arup, Frödén & Søchting Syn.: *Caloplaca gloriae* sensu Aprot, *C. verruculifera*

POLYCHIDIUM (Ach.) Gray

muscicola (Sw.) Gray Syn.: *Leptogium muscicola*
albociliatum (Desm.) Zahlbr. = *Leptochidium albociliatum*
contortum Henssen = *Leptogidium contortum* (Muggia et al. 2011)
dendriscum (Nyl.) Henssen = *Leptogidium dendriscum* (Muggia et al. 2011)
intricatum (Nyl.) Henssen = *Dendriscoaulon intricatum*
rivale (Tuck.) Fink = *Scytinium rivale*
umhausense (Auersw.) Henssen = *Dendriscoaulon umhausense*

POLYCOCCUM Sauter ex Körber

***clauzadei** Nav.-Ros. & Cl. Roux (Hafellner et al. 2002)
***hymeniicola** (Berk. & Broome) Zhurb. (Spribille et al. 2010, Zhurbenko & Dillman 2010)
***kernerii** J. Steiner (Hafellner et al. 2002)
***laursenii** Zhurb. (Zhurbenko & Alstrup 2004)
***microcarpum** Diederich & Etayo (Zhurbenko & Pino-Bodas 2017)
***microsticticum** (Leighton ex Mudd) Arnold
***minutulum** Kocourková & F. Berger (Diederich 2003)
***opulentum** (Th. Fr. & Almq.) Arnold (Hafellner et al. 2002)
***peltigerae** (Fuckel) Vězda (Alstrup 2004)
***pulvinatum** (Eitner) R. Sant.
***sporastatae** (Anzi) Arnold
***squamarioides** (Mudd) Arnold
***trypethelioides** (Th. Fr.) R. Sant. (Diederich 2003)
***vermicularium** (Lindsay) D. Hawksw. (Esslinger & Egan 1995)
**bryonthae* (Arnold) Vězda (Zhurbenko 2009a) = *Didymocyrtis bryonthae* (Ertz et al. 2015a)
**epicrassum* (H. Olivier) R. Sant. = *Clypeococcum epicrassum*, but see note there
**galligenum* Vězda = *P. pulvinatum*
**gelidarium* (Mudd) D. Hawksw. = *Roselliniopsis gelidaria*

POLYDESMIA Boud.

***lichenis** Huhtinen & R. Sant. (Spribille et al. 2010)

POLYMERIDIUM (Müll. Arg.) R. C. Harris

albidum (Müll. Arg.) R. C. Harris

albocinereum (Kremp.) R. C. Harris

catapastum (Nyl.) R. C. Harris

contendens (Nyl.) R. C. Harris

quinqueseptatum (Nyl.) R. C. Harris Syn.: *Arthopyrenia quinqueseptata*, *Pyrenula quinqueseptata*

subcinereum (Nyl.) R. C. Harris Syn.: *Porina subcinerea*

pleiomerellum (Müll. Arg.) R. C. Harris = *P. albocinereum*

proponens (Nyl.) R. C. Harris Syn. = *Dictyomeridium proponens*

POLYPYRENULA D. Hawksw.

sexlocularis (Müll. Arg.) D. Hawksw. Syn.: *Polythelis sexlocularis*. The implied occurrence of this species in Florida is questionable. No material seen from North America

POLYSPORINA Vězda

***arenacea** (H. Magn.) K. Knudsen & Kocourk. Syn.: *Acarospora arenacea* (Knudsen & Kocourková 2008a)

cyclocarpa (Anzi) Vězda (Knudsen et al. 2011b)

gyrocarpa (H. Magn.) N. S. Golubk. Syn.: *Sarcogyne oligospora*, *S. gyrocarpa* (Knudsen & Kocourková 2009c)

***pusilla** (Anzi) M. Steiner ex Kantvilas (Knudsen & Kocourková 2008a)

simplex (Taylor) Vězda Syn.: *Biatorella revertens*, *B. simplex*, *Lecanora privigna*, *Sarcogyne simplex*

***subfuscescens** (Nyl.) K. Knudsen & Kocourk. Syn.: *Acarospora subfuscescens*, *Sarcogyne bicolor* (Knudsen & Kocourková 2008a)

urceolata (Anzi) Brodo

lapponica (Ach. ex Schaerer) Degel. = *Sarcogyne lapponica* (see note there)

**lapponica* auct. N.A. = *Polysporina subfuscescens*

oligospora (H. Magn.) K. Knudsen (Knudsen & Lendemer 2005a) = *P. gyrocarpa*

POLYTHELIS Clem. = **POLYPYRENULA**

sexlocularis (Müll. Arg.) Clem. = *Polypyrenula sexlocularis* (q.v.)

PORINA Müll. Arg.

amygdalina Müll. Arg.

heterospora (Fink ex J. Hedrick) R. C. Harris

linearis (Leighton) Zahlbr. (Nash 2002) Syn.: *Pseudosagedia linearis*, *Trichothelium lineare*

norrlinii Vainio (Fryday 2010)

nucula Ach.

nuculastrum (Müll. Arg.) R. C. Harris Syn.: *Clathroporina nuculastrum*, *C. confinis*, *Polyblastiopsis floridana* (Harris 1995a)

pacifica Brodo (Brodo 2004)

peregrina Tretiach & P. M. McCarthy (Aptroot 2002e)

radicicola P. M. McCarthy & Tønsberg (McCarthy & Tønsberg 1998)

salicina Müll. Arg.

scabrida R. C. Harris (Harris 1995a)

aenea (Wallr.) Zahlbr. = *Pseudosagedia aeneum*

carpineae (Pers. ex Ach.) Zahlbr. = *Pseudosagedia aeneum*

cestrensis (Tuck. ex E. Michener) Müll. Arg. = *Pseudosagedia cestrensis*

chlorotica (Ach.) Müll. Arg. = *Pseudosagedia chlorotica*

cinerea "(Pers.) Zahlbr." = nom. illeg. = *Strigula stigmatella*

faginea (Schaerer) Arnold = *Strigula stigmatella*

guentheri (Flotow) Zahlbr. = *Pseudosagedia guentheri*

hibernica P. James & Swinscow = misidentification for North America (Harris 1995a)

lectissima (Fr.) Zahlbr. = *Segrestia lectissima*

leptalea (Durieu & Mont.) A. L. Sm. = Segestria leptalea
 linearis (Leighton) Zahlbr. = Pseudosagedia linearis
 mammosa (Th. Fr.) Vainio = Segestria mammosa
 mastoidea (Ach.) Müll. Arg. = misidentification for North America (Harris 1995a)
 nitidula Müll. Arg. = Pseudosagedia nitidulum
 nucula var. heterospora Fink = Porina heterospora
 olivacea (Pers.) A. L. Sm. = misidentification for North America
 plumbaria (Stizenb.) Hasse = Arthopyrenia plumbaria
 pulla (Ach.) Müll. Arg. = an Arthopyrenia sp., not in North America
 raphidosperma Müll. Arg. = Pseudosagedia raphidosperma
 subcinerea (Nyl.) Zahlbr. = Polymeridium subcinereum
 thaxteri R. Sant. = Pseudosagedia thaxteri
 viridiseda (Nyl.) Zahlbr. = Strigula viridiseda

POROCYPHUS Körber

coccodes (Flotow) Körber Syn.: *P. furfurellus*
kenmorensis (Holl ex Nyl.) Henssen
 dispersus E. Dahl = *Thelignya lignyota*
 furfurellus (Nyl.) Forssell = *P. coccodes*

PORPIDIA Körber

albocaerulescens (Wulfen) Hertel & Knoph Syns.: *Huilia albocaerulescens*, *Lecidea albocaerulescens*, *L. hebescens*
albocaerulescens (Wulfen) Hertel & Knoph var. **polycarpiza** (Vainio) Rambold & Hertel (Rambold 1989)
calcarea Gowan
carlottiana Gowan
cinereoatra (Ach.) Hertel & Knoph Syns.: *Huilia cinereoatra*, *Lecidea cinereoatra*
contraponenda (Arnold) Knoph & Hertel
crustulata (Ach.) Hertel & Knoph Syns.: *Huilia crustulata*, *Lecidea crustulata*
degelii (H. Magn.) Lendemer Syn.: *Lecidea degelii* (Lendemer & Harris 2014c)
flavicunda (Ach.) Gowan Syn.: *Huilia flavocaerulescens*, *Lecidea flavocaerulescens* (Fryday 2005)
flavocruenta Fryday & Buschbom (Fryday 2005)
grisea Gowan
lowiana Gowan
macrocarpa (DC.) Hertel & A. J. Schwab Syns.: *Huilia macrocarpa*, *H. nigrocruenta*, *Lecidea steriza*, *L. macrocarpa*, *L. platycarpa*, *L. phylliscina*, *L. contigua*, *L. soledifera*
melinodes (Körber) Gowan & Ahti Syns.: *Aspicilia melinodes*, *Huilia melinodes*, *Lecidea melinodes*
ochrolemma (Vainio) Brodo & R. Sant. Syn.: *Hymenelia ochrolemma*
platycarpoides (Bagl.) Hertel Syn.: *Huilia platycarpoides*
rugosa (Taylor) Coppins & Fryday Syns.: *Huilia glaucophaea*, *Lecidea glaucophaea* (Fryday 2005)
soredizodes (Lamy ex Nyl.) J. R. Laundon Syns.: *Lecidea soredizodes*, *Huilia soredizodes* (Fryday et al. 2007)
speirea (Ach.) Kremp. Syn.: *Lecidea speirea*
subsimplex (H. Magn.) Fryday (Coppins & Fryday 2006b)
superba (Körber) Hertel & Knoph Syn.: *Huilia superba*
thomsonii Gowan
tuberculosa (Sm.) Hertel & Knoph Syns.: *Huilia tuberculosa*, *Lecidea sorediza*, *L. tumida*
zeoroides (Anzi) Knoph & Hertel Syn.: *Lecidea macrocarpa* var. *trullisata*
diversa (Lowe) Gowan = *P. contraponenda* (Fryday 2005)
flavocaerulescens (Hornem.) Hertel & A. J. Schwab = *P. flavicunda* (Fryday 2005)
glaucophaea (Körber) Hertel & Knoph = *P. rugosa* (Fryday 2005)
herteliana Gowan = *P. cinereoatra* (Fryday 2005)
nigrocruenta (Anzi) Diederich & Sérus. = *P. macrocarpa*
pseudomelinodes A. J. Schwab = *Porpidia ochrolemma*
tahawasiana Gowan = *P. subsimplex*

PRONECTRIA Clem.

- ***anisospora** (Lowen) Lowen Syn.: *Nectriella anisospora*
- ***dillmaniae** Zhurb. (Zhurbenko et al. 2005)
- ***erythrinella** (Nyl.) Lowen Syn.: *Nectriella erythrinella*
- ***fissuriprodiens** Etayo (Spribille et al. 2010)
- ***oligospora** Lowen & Rogerson
- ***robergei** (Mont. & Desm.) Lowen (Alstrup & Cole 1998)
- ***tibellii** Zhurb. (« *tibellae* ») (Zhurbenko & Alstrup 2004)
- ***walkerorum** Zhurb. (Zhurbenko et al. 2005)

PROTOBLASTENIA (Zahlbr.) J. Steiner

- calva** (Dickson) Zahlbr.
- cyclospora** (Hepp ex Körber) Poelt (Dillman et al. 2012)
- incrustans** (DC.) J. Steiner
- rupestris** (Scop.) J. Steiner
- terricola** (Anzi) Lynge
- cinnabarina* (Sommerf.) Räsänen = *Ramboldia cinnabarina*
- monticola* (Ach.) J. Steiner = *Clauzadea monticola*
- quernea* (Dickson) Clauzade = *Pyrrhospora quernea*
- rupestris* var. *calva* (Dickson) J. Steiner = *P. calva*
- russula* (Ach.) Räsänen = *Ramboldia russula*

PROTOMICAREA Hafellner (Hafellner & Türk 2001)

- limosa** (Ach.) Hafellner Syn.: *Lecidea limosa*

PROTOPANNARIA (Gyelnik) P. M. Jørg. & S. Ekman

- pezizoides** (Weber) P. M. Jørg. & S. Ekman (Jørgensen 2000c) Syn: *Pannaria pezizoides*

PROTOPARMELIA M. Choisy

- atriseda** (Fr.) R. Sant. & V. Wirth Syn.: *Lecanora atriseda*
- badia** (Hoffm.) Hafellner Syn.: *Lecanora badia*, *L. grandis*
- capitata** Lendemer (Lendemer & Lumbsch 2008)
- cupreobadia** (Nyl.) Poelt
- hypotremella** Herk, Spier & V. Wirth (Brodo & Aptroot 2005)
- isidiata** Diederich, Aptroot & Sérus. (Lendemer & Lumbsch 2008)
- leproloma** (R. Sant.) Rambold & Poelt (McCune 2017)
- memnonia** Hafellner & Türk (McCune 2017)
- nephaea** (Sommerf.) R. Sant. ex Poelt & Obermayer Syn.: *Lecanora nephaea*
- ochrococca** (Nyl.) P. M. Jørg., Rambold & Hertel Syn.: *Lecidea ochrococca*, *Lecanora ochrococca*, *L. phaeobola*
- [#]*ryaniana* van den Boom, Sipman & Elix (van den Boom et al. 2007) = *Miriquidica verrucariicola* (Knudsen et al. 2015)

PROTOPARMELIOPSIS M. Choisy

- bipruinosa** (Fink) S. Y. Kondr. (Kondratyuk et al. 2012) Syn.: *Lecanora bipruinosa*
- crustacea** (Savicz) S. Y. Kondr. (Kondratyuk et al. 2012) Syn.: *Lecanora crustacea*
- dispersoareolata** (Körber) S. Y. Kondr. (Kondratyuk et al. 2012) Syn.: *Lecanora dispersoareolata*
- garovaglii** (Körber) Arup, Zhao Xin & Lumbsch (Zhao et al. 2016) Syn.: *Lecanora cascadiensis*, *L. garovaglii*, *L. nevadensis*
- geiserae** (B. D. Ryan) S. Y. Kondr. (Kondratyuk et al. 2012) Syn.: *Lecanora geiserae*
- gyrophorica** (Lendemer) S. Y. Kondr. (Kondratyuk et al. 2013) Syn.: *Lecanora gyrophorica*
- kofae** (B. D. Ryan & T. H. Nash) (Kondratyuk et al. 2012) Syn.: *Lecanora kofae*
- laatokkaensis** (Räsänen) Moberg & R. Sant. Syn.: *Lecanora laatokkaensis*
- mazatzalensis** (B. D. Ryan & T. H. Nash) S. Y. Kondr. (Kondratyuk et al. 2013) Syn.: *Lecanora mazatzalensis*

muralis (Schreber) M. Choisy (Zhao et al. 2016) Syns.: *Lecanora diffracta*, *L. muralis*, *L. saxicola*, *L. versicolor*
peltata (Ramond) Arup, Zhao Xin & Lumbsch (Zhao et al. 2016) Syn.: *Rhizoplaca peltata*, *Lecanora peltata*
pinguis (Tuck.) S. Y. Kondr. (Kondratyuk et al. 2013) Syn.: *Lecanora pinguis*

PROTOTHELENELLA Räsänen

corrosa (Körber) H. Mayrhofer & Poelt Syn.: *Microglæna corrosa*
***crocea** (Bagl. & Carestia) Haffelner & H. Mayrhofer (Spribille et al. 2010)
leucothelia (Nyl.) H. Mayrhofer & Poelt (Goward et al. 1996)
pluriseptata Fryday (Fryday 2004a) Syn.: *Gongylia muscorum*
***santessonii** H. Mayrhofer
sphinctrinoidella (Nyl.) H. Mayrhofer & Poelt (Mayrhofer 1987)
sphinctrinoides (Nyl.) H. Mayrhofer & Poelt Syn.: *Microglæna sphinctrinoides*, *Verrucaria pernigrata*

PROTOUNGUICULARIA Raitv. & R. Galán

***nephromatis** (Zhurb. & Zavarzin) Huhtinen, D. Hawksw. & Ihlen (Huhtinen et al. 2008) Syn.:
Unguiculariopsis nephromatis
***transiens** (Höhn.) Huhtinen (Huhtinen et al. 2008)

PSEUDEPHEBE M. Choisy

minuscula (Nyl. ex Arnold) Brodo & D. Hawksw. Syn.: *Alectoria minuscula*
pubescens (L.) M. Choisy Syns.: *Alectoria pubescens*, *Ephebe pubescens*, *Parmelia lanata* (According to a molecular study by Boluda et al. (2016), *P. pubescens* has not been confirmed for North America)

PSEUDEVERNIA Zopf

cladonia (Tuck.) Hale & W. L. Culb. Syn.: *Parmelia cladonia*
consocians (Vainio) Hale & W. L. Culb.
intensa (Nyl.) Hale & W. L. Culb.
furfuracea (L.) Zopf = misidentification for North America; records are either *P. consocians* or *P. intensa*

PSEUDOCYPHELLARIA Vainio

citrina (Gyeln.) Lücking, Moncada & S. Stenroos (Lücking et al. 2017a)
deyi Lücking (Lücking et al. 2017a)
epiflavoides (Gyeln.) Lücking, Farkas & Lőkös (Lücking et al. 2017a)
hawaiiensis H. Magn. (Moncada et al. 2014)
holarctica McCune, Lücking & Moncada (Lücking et al. 2017a)
mallota (Tuck.) H. Magn. (Tønsberg 1999b)
punctata Lücking & Moncada (Lücking et al. 2017a)
rainierensis Imshaug
anomala Brodo & Ahti = *Lobaria anomala* (McCune et al. 2014b)
anthraspis (Ach.) H. Magn. = *Lobaria anthraspis* (McCune et al. 2014b)
aurata (Ach.) Vainio = *Crocodia aurata* (Galloway & Elix 2013)
crocata (L.) Vainio Misidentifications for North America (Lücking et al. 2017a)
mougeotiana (Delise) Vainio = *P. crocata*, but misidentifications for North America
perpetua McCune & Miądl. (Miądlowska et al. 2002) = *P. hawaiiensis* (Moncada et al. 2014)

PSEUDOPARMELIA Lynge (Elix & Nash 1997)

cubensis (Nyl.) Elix & T. H. Nash (Elix & Nash 1997) Syn.: *Parmelia leucochlora* Tuck. non (Mont.) Mont.
floridense Elix & T. H. Nash (Elix & Nash 1997)
uleana (Müll. Arg.) Elix & T. H. Nash (Elix & Nash 1997) Syn.: *Parmelia uleana*, *Parmelia endoxantha*, *Parmelia congruens* auct., *Parmelia sphaerospora* auct.
alabamensis (Hale & McCull.) Hale = *Canoparmelia alabamensis*
amazonica (Nyl.) Hale = *Canoparmelia amazonica*


baltimorensis (Gyelnik & Fóris) Hale = Flavoparmelia baltimorensis
 caperata (L.) Hale = Flavoparmelia caperata
 caroliniana (Nyl.) Hale = Canoparmelia caroliniana
 crozalsiana (B. de Lesd.) Hale = Canoparmelia crozalsiana
 cryptochlorophaea (Hale) Hale = Canoparmelia cryptochlorophaea
 martinicana (Nyl.) Hale = Canoparmelia martinicana
 rutidota (Hooker f. & Taylor) Hale = Flavoparmelia rutidota
 salacinifera (Hale) Hale = Canoparmelia salacinifera
 sphaerospora (Nyl.) Hale (North American records) = Pseudoparmelia uleana
 texana (Tuck.) Hale = Canoparmelia texana

PSEUDOPYRENIDIUM Nav.-Ros., Zhurb. & Cl. Roux
 ***tartaricola** (Lindsay) Nav.-Ros., Zhurb. & Cl. Roux (Zhurbenko 2013)

PSEUDOPYRENULA Müll. Arg.
diluta (Fée) Müll. Arg. var. **degenerans** Vainio (Harris 1998)
staphyleae (Petr.) Aptroot Syn.: Massarina staphyleae (Aptroot et al. 2016)
subgregaria Müll. Arg. (Lücking et al. 2011b)
subnudata Müll. Arg. (Lücking et al. 2011b)
 pupula (Ach.) Müll. Arg. = Trypethelium floridanum for North American records

PSEUDOSAGEDIA (Müll. Arg.) M. Choisy (Harris 2005)
aenea (Wallr.) Hafellner & Kalb Syn.: Trichothelium aeneum, Porina aenea, P. carpinea
cestrensis (Tuck. ex E. Michener) R. C. Harris Syns.: Porina cestrensis, Trichothelium cestrense, Verrucaria cestrensis
chlorotica (Ach.) Hafellner & Kalb Syn.: Porina chlorotica, Trichothelium chloroticum
crocynoides (R. C. Harris) R. C. Harris Syn.: Trichothelium crocynoides
guentheri (Flotow) Hafellner & Kalb Syn.: Porina guentheri, Trichothelium guentheri
isidiata (R. C. Harris) R. C. Harris Syn.: Trichothelium isidiatum
nitidula (Müll. Arg.) Hafellner & Kalb Syn.: Porina nitidula, Trichothelium nitidulum
rhaphidosperma (Müll. Arg.) R. C. Harris Syns.: Porina rhaphidosperma, Trichothelium rhaphidospermum
thaxteri (R. Sant.) Hafellner & Kalb Syn.: Porina thaxteri, Trichothelium thaxteri
 linearis (Leighton) Hafellner & Kalb = Porina linearis

PSEUDOSCHISMATOMMA Ertz & Tehler (Ertz et al. 2015b)
rufescens (Pers.) Ertz & Tehler Syn.: Opegrapha rufescens

PSEUDOTHELOMMA M. Prieto & Wedin (Prieto & Wedin 2017)
ocellatum (Körber) M. Prieto & Wedin Syns.: Acolium ocellatum, Thelomma ocellatum
occidentale (Herre) M. Prieto & Wedin Syn.: Cyphelium occidentale, 

PSIROLECHIA A. Massal.
clavulifera (Nyl.) Coppins Syn.: Lecidea adirondackii
lucida (Ach.) M. Choisy Syn.: Lecidea lucida

PSORA Hoffm.
brunneocarpa Timdal (Timdal 2002a)
californica Timdal
cerebriformis W. A. Weber
crenata (Taylor) Reinke Syns.: Lecidea crenata, L. coroniformis
decipiens (Hedwig) Hoffm. Syns.: Biatora decipiens, Lecidea decipiens
elenkinii Rass. (Zhurbenko 2009a)
globifera (Ach.) A. Massal. Syn.: Lecidea globifera
himalayana (Church. Bab.) Timdal

hyporubescens Timdal (Timdal 2002a)
icterica (Mont.) Müll. Arg. Syn.: *Lecidea icterica*
luridella (Tuck.) Fink Syn.: *Lecidea luridella*
montana Timdal
nipponica (Zahlbr.) Gotth. Schneider Syns.: *Lecidea novomexicana*
pacifica Timdal
peninsularis Timdal (Timdal 2002a)
pruinosa Timdal (Timdal 2002a)
pseudorussellii Timdal
rubiformis (Ach.) Hooker Syn.: *Lecidea rubiformis*
russellii (Tuck.) A. Schneider Syns.: *Lecidea russellii*, *Biatora russellii*
tenuifolia Timdal
tuckermanii R. A. Anderson ex Timdal
vallesiaca (Schaerer) Timdal
anthracophila (Nyl.) Arnold = *Carbonicola anthracophila*
demissa (Rutstr.) Hepp = *Lecidoma demissum*
friesii (Ach.) Hellbom = *Xylopsora friesii*
lurida (Ach.) DC. = *Romjularia lurida*
novomexicana B. de Lesd. = *P. nipponica*
ostreata Hoffm. = *Hypocenomyce scalaris*
petri (Tuck.) Fink = *Romjularia lurida*
pulcherrima (Vainio) Elenkin = *Anamylopsora pulcherrima*
rufonigra (Tuck.) A. Schneider = *Psorula rufonigra*
scalaris (Ach. ex Lilj.) Hooker = *Hypocenomyce scalaris*
scholanderi (Lynge) R. A. Anderson = *Toninia tristis*
scotopholis (Tuck.) Fink (Fink 1935) = *Miriquidica scotopholis*
testacea (Hoffm.) Ach. Syns.: *Lecidea testacea*, *Chrysopsora testacea*, but not present in North American flora.
texana W. A. Weber = *Xanthopsorella texana*

PSORINIA Gotth. Schneider

conglomerata (Ach.) Gotth. Schneider Syn.: *Toninia conglomerata*

PSOROGLAENA Müll. Arg.

costaricensis Henssen (Lücking et al. 2011b)
cubensis Müll. Arg. var. **cubensis**
cubensis var. **teretiloba** O. Eriksson
dictyospora (Orange) H. Harada (Harada 2003) Syn.: *Macentina dictyospora*
stigonemoides (Orange) Henssen (Björk et al. 2009)

PSOROMA Michaux

cinnamomeum Malme (Jørgensen 2000c)
hypnorum (Vahl) Gray Syn.: *Pannaria hypnorum*
paleaceum (Fr.) Timdal & Tønsberg
tenue Henssen var. **boreale** Henssen
hirsutululum Nyl. (Jørgensen 2005) = *P. paleaceum* (Timdal & Tønsberg 2006)

PSOROTICHIA A. Massal.

hassei Fink ex J. Hedrick
minuta H. Magn.
montinii (A. Massal.) Forssell (Schultz 2007c)
murorum A. Massal. (Schultz 2007c)
nigra H. Magn.
schaereri (A. Massal.) Arnold Syn.: *Pyrenopsis schaeeri*
taurica (Nyl.) Vainio (Schultz 2007c)
vermiculata (Nyl.) Forssell (Knudsen et al. 2017)

numidella (Nyl.) Forssell var. flageyana J. Steiner Erroneously listed here; reported only from Mexico (Schulz 2007c)
segregata (Nyl. ex Hasse) Hasse = Lempholemma chalazanum
squamulosa Zahlbr. = Gloeohheppia squamulosa

PSORULA Gotth. Schneider

rufonigra (Tuck.) Gotth. Schneider Syns.: Biatora rufonigra, Lecidea rufonigra, L. brouardii, Psora rufonigra
scotopholis (Tuck.) Gotth. Schneider = Miriquidica scotopholis

PTERYGIOPSIS Vainio

atra Vainio
canariensis Henssen (Schultz 2006)
cava M. Schultz (Schultz 2006)
neglecta (Erichsen) M. Schultz & Thüs ined. Syn.: Forsellia neglecta (Lewis 2014)

PTERYGIUM Nyl.

petersii Nyl. (Fink 1935) = Placynthium petersii

PTYCHOGRAPHIA Nyl. (McCune 1997b)

xylographoides Nyl. (McCune 1997b)

PUNCTELIA Krog

appalachensis (W. L. Culb.) Krog Syn.: Parmelia appalachensis
bolliana (Müll. Arg.) Krog Syns.: Parmelia bolliana, P. frondifera
borreri (Sm.) Krog Syns.: Parmelia borreri, P. pseudoborreri
caseana Lendemer & Hodkinson (Lendemer & Hodkinson 2010)
eganii Hodkinson & Lendemer (Hodkinson & Lendemer 2011)
graminicola (B. de Lesd.) Egan Syn.: Parmelia graminicola, P. semansiana (Egan 2003)
hypoleucites (Nyl.) Krog Syn.: Parmelia hypoleucites
jeckeri (Roum.) Kalb (Lendemer & Hodkinson 2010)
missouriensis G. Wilh. & Ladd (Adler 1997, van Herk & Aptroot 2000, Aptroot 2003)
nashii Marcelli & Canêz (Marcelli et al. 2011)
perreticulata (Räsänen) G. Wilh. & Ladd Syn.: Parmelia perreticulata
punctilla (Hale) Krog
reddenda (Stirton) Krog Syn.: Parmelia reddenda
rudecta (Ach.) Krog Syn.: Parmelia rudecta
stictica (Duby) Krog Syn.: Parmelia stictica
subpraesignis (Nyl.) Krog Syn.: Parmelia subpraesignis
darrowi (J. W. Thomson) Krog = Flavopunctelia darrowi
flaventior (Stirton) Krog = Flavopunctelia flaventior
praesignis (Nyl.) Krog = Flavopunctelia praesignis
semansiana (W. L. Culb. & C. F. Culb.) Krog = P. graminicola
soredica (Nyl.) Krog = Flavopunctelia soredica
subrudecta (Nyl.) Krog = misidentification for North America (Lendemer & Hodkinson 2010)
ulophylla (Ach.) van Herk & Aptroot (Tucker et al. 2006) = P. jeckeri (Lendemer & Hodkinson 2010)

PUTTEA S. Stenroos & Huhtinen

caesia (Fr.) M. Svensson & T. Sprib. (Dillman et al. 2012) Syn.: Lecidea symmictella
exsequens (Nyl.) Printzen & Davydov (Buck & Lendemer 2012)
margaritella (Hulting) S. Stenroos & Huhtinen (Spribille et al. 2010)

PYCNORA Hafellner (Hafellner & Türk 2001)

praestabilis (Nyl.) Hafellner Syn.: Hypocenomyce praestabilis
sorophora (Vainio) Hafellner Syn.: Hypocenomyce sorophora

xanthococca (Sommerf.) Hafellner Syns.: *Hypocenomyce xanthococca*, *Lecidea xanthococca*
leucococca (R. Sant.) R. Sant. (Santesson et al. 2004) = *Toensbergia leucococca*

PYCNOTHELIA Dufour

papillaria Dufour Syns.: *Cladonia heteromorpha*, *C. papillaria*
cladinoides Nyl. = *Cladonia caroliniana* (Ahti & Brodo 1981)

PYCNOTREMA Rivas Plata & Lücking

pyncnoporellum (Nyl.) Rivas Plata & Lücking Syn.: *Myriotrema pyncnoporellum* (Lücking et al. 2016)

PYRENASTRUM Eschw. = **PYRENULA**

astroideum (Fée) Eschw. = *Pyrenula astroideum*
cubanum Müll. Arg. = *Pyrenula cubana*
fuscum Mont. = *Pyrenula septicollaris*
pyrenastraeum (Nyl.) Zahlbr. = *Pyrenula septicollaris*

PYRENIDIUM Nyl.

***actinellum** Nyl.
***aggregatum** K. Knudsen & Kocourk. (Knudsen & Kocourková 2010g)
***hyalosporum** Alstrup, D. Hawksw. & R. Sant.
***octosporum** Looman = *Thelenella muscorum* var. *octospora*

PYRENOCARPON Trevisan

thelostomum (Ach. ex J. Harriman) Coppins & Aptroot (Dillman et al. 2012)

PYRENOCOLLEMA Reinke

atlanticum (Vainio) R. C. Harris (Harris 1995a)
caesium (Nyl.) R. C. Harris
prospersellum (Nyl.) R. C. Harris Syn.: *Arthopyrenia prospersella*
tichothecioides (Arnold) R. C. Harris Syn.: *Arthopyrenia tichothecioides*
elegans R. Sant. = *Collemopsidium elegans*
halodytes (Nyl.) R. C. Harris = *Collemopsidium halodytes*
strontianense (Swinscow) R. C. Harris = *Collemopsidium angermannicum*
sublitorale (Leighton) R. C. Harris ex Fletcher = *Collemopsidium sublitorale*

PYRENODESMIA A. Massal. (Arup et al. 2013)

variabilis (Pers.) A. Massal. Syn.: *Caloplaca variabilis*
albovariegata B. de Lesd. = *Caloplaca albovariegata*
elaeodes E. D. Rudolph = *Caloplaca pellodella*
montana B. de Lesd. = a *Caloplaca* sp.

PYRENOPSISIDIUM (Nyl.) Forssell = **CRYPTOTHELE**

granuliforme (Nyl.) Forssell = *Cryptothele granuliformis*
homoeopsis (Nyl.) Forssell = *Pyrenopsis furfurea*
iivarensis (Vainio) Forssell (Thomson 1997) = *Pyrenopsis furfurea* (Henssen & Jørgensen 1990; Santesson 1993)

PYRENOPSIS (Nyl.) Nyl.

compacta Willey
furfurea (Nyl.) Th. Fr. Syns.: *Pyrenopsidium homoeopsis*, *P. iivarensis*
fuscoatra Fink
grumulifera Nyl.
haemalella (Nyl.) Blomb. & Forssell
haematina P. M. Jörg. & Henssen (Spribille et al. 2010)
lecideella Fink ex J. Hedrick
phaeococca Tuck.

polycocca (Nyl.) Tuck.
portoricensis Zahlbr. (fide Perlmutter, see appendix)
reducta Th. Fr. (Hutten et al. 2013)
sanguinea Anzi
subareolata Nyl. (Schultz 2009)
subfuliginea Nyl.
tasmanica Nyl.
triptococca Nyl. (Schultz 2007d)
viridirufa Tuck.
 granatina (Sommerf.) Nyl. = *Euopsis granatina*
 granuliformis (Nyl.) Th. Fr. = *Cryptothele granuliforme*
 homoeopsis Nyl. = *P. furfurea*
 melambola (Tuck.) Tuck. = *Metamelanea melambola*
 "multispora E. Dahl" Report probably refers to *P. myriospora* E. Dahl = *P. grumulifera*
 myriospora E. Dahl = *P. grumulifera*
 phylliscina (Tuck.) Tuck. = *Cryptothele permiscens*
 pulvinata (Schaerer) Th. Fr. = *Euopsis pulvinata*
 schaereri A. Massal. = *Psorotichia schaereri*

PYRENOTHAMNIA Tuck. = **ENDOCARPON**
 brandegei (Tuck.) Zahlbr. = *Endocarpon pulvinatum*
 spraguei Tuck. = *Endocarpon pulvinatum*

PYRENOTHRIX Riddle
nigra Riddle Syn.: *Lichenothrix riddlei*

PYRENOTRICHUM Mont.
 splitgerberi Mont. = *campylidia* of lichens

PYRENULA A. Massal.
acutalis R. C. Harris
acutispora Kalb & Hafellner (Aptroot 1996)
adacta Fée (Aptroot 2012)
anomala (Ach.) Vainio Syn.: *Melanotheca anomala*, *M. achariana*
aspistea (Ach.) Ach.
astroidea (Fée) R. C. Harris Syn.: *Parmentaria astroidea*
atrolaminata R. C. Harris (Aptroot 1996)
bahiana Malme (Aptroot 2012)
balia (Kremp.) R. C. Harris (Aptroot 2012)
breutelii (Müll. Arg.) Aptroot (Aptroot 2012) Syn.: *Anthracotheceum maculare*
brunnea Fée (Lücking et al. 2011b)
caryae R. C. Harris (Aptroot 1996)
cerina Eschw.
chlorospila (Nyl.) Arnold (Aptroot 2012)
circumfiniens Vainio (Aptroot 2012) Syn.: *Parathelium subferrugineum*
clavatispora Common & Aptroot (Aptroot & Common 2017)
cocoes Müll. Arg.
confinis (Nyl.) R. C. Harris (Lücking et al. 2011b)
confoederata R. C. Harris
cruenta (Mont.) Vainio Syn.: *Melanotheca cruenta*, *M. subincruenta*, *Trypethelium cruentum*
cruentata (Müll. Arg.) R. C. Harris Syn.: *Bottaria cruentata*
cubana (Müll. Arg.) R. C. Harris Syn.: *Pyrenastrum cubanum*
cuyabensis (Malme) R. C. Harris Syn.: *Parathelium cuyabense*
dermatodes (Borrer) Schaerer (Lücking et al. 2011b)
dissimulans (Müll. Arg.) R. C. Harris (Seavey & Seavey 2014a)
duplicans (Nyl.) Aptroot (Lücking et al. 2011b)

erumpens R. C. Harris Syn.: *Parathelium emergens*
fetivica (Kremp.) Müll. Arg. (Aptroot 2012)
globifera (Eschw.) Aptroot (Lücking et al. 2011b)
laetior Müll. Arg. (Harris 1995a)
laevigata (Pers.) Arnold
leucostoma Ach. Syns.: *Anthracothecium leucostomum*, *Parmentaria rappii*
macounii R. C. Harris
mamillana (Ach.) Trevisan (fide R. Harris)
micheneri R. C. Harris
microcarpa Müll. Arg.
microtheca R. C. Harris Syn.: *Parathelium microcarpum*
minor Fée (Seavey & Seavey 2014a)
nitidula (Bres.) R. C. Harris (Harris 1995a)
novemseptata Vainio (Aptroot 2012) Syn.: *Anthracothecium varians*
occidentalis (R. C. Harris) R. C. Harris
ochraceoflava (Nyl.) R. C. Harris Syn.: *Anthracothecium ochraceoflavum*
ochraceoflavens (Nyl.) R. C. Harris Syn.: *Anthracothecium ochraceoflavens*
oleosa R. C. Harris
parvinuclea (Meyen & Flotow) Aptroot (Seavey & Seavey 2014a)
papillifera (Nyl.) Aptroot (Aptroot 2012)
pleiomera (Nyl.) Zahlbr. (Seavey & Seavey 2014a)
pseudobufonia (Rehm) R. C. Harris
punctella (Nyl.) Trevisan
pyrenuloides (Mont.) R. C. Harris Syn.: *Anthracothecium pyrenuloides*
quassiicola Fée
ravenelii (Tuck.) R. C. Harris Syn.: *Parmentaria ravenelii*
rubrostoma R. C. Harris
schiffneri (Zahlbr.) Aptroot (Aptroot 2012) Syn. *Anthracothecium falsarium*
septicollaris (Eschw.) R. C. Harris Syns.: *Pyrenastrum fuscum*, *P. pyrenastraeum*
sexlocularis (Nyl.) Müll. Arg. (Lücking et al. 2011b)
subelliptica (Tuck.) R. C. Harris
subgregantula Müll. Arg. (Aptroot 2012)
tenuisepta R. C. Harris
thelomorpha Tuck. Syn.: *Anthracothecium thelomorphum*
wetmorei R. C. Harris
wheeleri R. C. Harris
 aggregata (Fée) Fée (Mohr 1901) = misidentification for North America
 aquila R. C. Harris = *P. aspistea* (Aptroot 2012)
 caraibica Aptroot & Etayo (Etayo & Aptroot 2003) = *Pyrenula adacta* (Aptroot 2012)
 cerasi (Schrader) Hepp = *Arthopyrenula cerasi*
 cinchonae (Ach.) Tuck. (Mohr 1901) = *Constrictolumina cinchonae*
 cinerea Zahlbr. = *P. microcarpa*
 cinerella (Nyl.) Branth & Rostr. (Claassen 1912) = *Microthelia micula*
 citriformis R. C. Harris = *P. fetivica* (Aptroot 2012)
 clandestina Ach. (Fink 1935) Typographic error for *Pyrenula clandestina* Ach. = *Ocellularia*
 clandestine (Ach.) Müll. Arg., an apparent misidentification for N. America
 concatervans (Nyl.) R. C. Harris = *P. sexlocularis* (Aptroot 2012)
 corticata (Müll. Arg.) R. C. Harris = *P. confinis* (Aptroot 2012)
 falsaria (Zahlbr.) R. C. Harris = *P. schiffneri* (Aptroot 2012)
 farrea auct. = *Eopyrenula leucoplaca*, but a misidentification for North America
 fulvella R. C. Harris = *P. subgregantula*
 glabrata (Ach.) A. Massal. = *P. laevigata*
 herrei Fink = *Arthopyrenia plumbaria*
 imperfecta (Ellis & Everh.) R. C. Harris = *P. subelliptica*
 leucoplaca (Wallr.) Körber = *Eopyrenula leucoplaca*, but a misidentification for North America
 leucoplaca var. pluriloculata Fink = *Eopyrenula intermedia*

lucifera R. C. Harris = *Pyrenula dermatodes* (Aptroot 2012)
macularis (Zahlbr.) R. C. Harris = *P. breutelii* (Aptroot 2012)
maculata (R. C. Harris) R. C. Harris = *P. chlorospila* (Aptroot 2012)
mamillana (Ach.) Trevisan = misidentification for North America
marginata Hooker = *P. mamillana*
martinicana (Vainio) R. C. Harris = *P. adacta*
megalospora Fink = *Acrocordia megalospora*
mucosa (Vainio) R. C. Harris (Harris 1995a) = *P. papillifera* (Aptroot 2012)
neglecta R. C. Harris = *P. pseudobufonia*
nitida (Weigel) Ach. = misidentification for North America
nitidella (Flörke ex Schaerer) Müll. Arg. var. *maculata* R. C. Harris = *P. chlorospila* (Aptroot 2012)
pachycheila Tuck. (Tuckerman 1872) = *Anthracotheций pachycheilum*
personata (Malme) R. C. Harris = *P. subgregantula* (Aptroot 2012)
pinguis (Sprengel) Fée = misidentification for North America
plittii R. C. Harris = *P. nitidula* (Aptroot 2012)
pulicina Nyl. (Fink 1935) Not located in any available source (Esslinger & Tucker 2009)
quinqueseptata (Nyl.) Tuck. (Tuckerman 1872) = *Polymeridium quinqueseptatum*
reebiae Aptroot & Gueidan (Gueidan et al. 2016) = *P. leucostoma* (Lendemer & Harris 2016)
santensis (Nyl.) Müll. Arg. = *P. balia* (Aptroot 2012)
subaggregata Müll. Arg. Not in North America
subferruginea (Malme) R. C. Harris = *P. circumfiniens* (Aptroot 2012)
subprostans (Nyl.) Tuck. (Tuckerman 1872) = *Anisomeridium subprostans*
texana Tuck. ex R. C. Harris = *P. microcarpa*
tropica (Ach.) Trevisan = *Nigrovothelium tropicum*
xyloides (Eschw.) Müll. Arg. = *P. mamillana*

PYRENULELLA Fink = PHAEOSPORA

**endococcoidea* (Nyl.) Fink = *Phaeospora rimosicola*

PYRGILLUS Nyl.

javanicus (Mont. & Bosch) Nyl.
americanus Nyl. = *P. javanicus*

PYRRHOSPORA Körber

quernea (Dickson) Körber Syns.: *Protoplastenia quernea*, *Lecidea quernea*
cinnabarina (Sommerf.) M. Choisy = *Ramboldia cinnabarina*
elabens (Fr.) Hafellner = *Ramboldia elabens*
gowardiana T. Sprib. & Hauck (Spribille & Hauck 2003) = *Ramboldia gowardiana*
russula (Ach.) Hafellner = *Ramboldia russula*
subcinnabarina (Tønsberg) Hafellner = *Ramboldia subcinnabarina*
varians (Ach.) R. C. Harris = *Lecidea varians*

PYXINE Fr.

albovirens (G. Meyer) Aptroot
berteriana (Fée) Imshaug
caesiopruinosa (Nyl.) Imshaug Possibly a synonym of *P. albovirens*?
cocoes (Sw.) Nyl.
coralligera Malme
eschweileri (Tuck.) Vainio
meissneriana Nyl. (Nash et al. 1998)
petricola Nyl.
retirugella Nyl.
sorediata (Ach.) Mont.
subcinerea Stirton (Amtoft 2002)
chrysanthoides Vainio = *P. subcinerea*
daedalea Krog & R. Sant. = misidentification for North America

frostii Tuck. = Dirinaria frostii
meissneri Tuck. = P. berteriana
picta (Sw.) Tuck. = Dirinaria picta
pringlei Imshaug = P. petricola

RACIBORSKIOMYCES Siemaszko (Diederich 2003)

***peltigericola** (D. Hawksw.) M. E. Barr Syn.: Wentiomyces peltigericola (Diederich 2003)

RACODIUM Pers. : Fr.

rupestre Pers.

RAESAENENIA D. Hawksw., Boluda & H. Lindgr.

***huuskonenii** (Räsänen) D. Hawksw., Boluda & H. Lindgr. Syn.: Phacopsis huuskonenii (Divakar et al. 2015)

RAMALINA Ach.

ahtii Kashiw. & T. H. Nash

almquistii Vainio Syn.: Fistulariella almquistii

americana Hale Earlier North American reports of R. fastigiata belong here.

baltica Lettau

bistorta Nyl.

calicaris (L.) Fr.

canariensis J. Steiner

celastri (Sprengel) Krog & Swinscow

complanata (Sw.) Ach.

culbersoniorum LaGreca (LaGreca 1999)

dasypoga Tuck.

dendriscoides Nyl.

denticulata Nyl.

dilacerata (Hoffm.) Hoffm. Syn.: Fistulariella minuscula

farinacea (L.) Ach.

fastigiata (Pers.) Ach. Earlier reports of this species from North America refer to R. americana

fraxinea (L.) Ach.

geniculata Hooker f. & Taylor Syn.: Fistulariella geniculata

inflata (Hooker f. & Taylor) Hooker f. & Taylor subsp. **inflata** Syn.: Fistulariella inflata

intermedia (Delise ex Nyl.) Nyl.

labiosorediata Gasparyan, Sipman & Lücking (Gasparyan et al. 2017)

lacera (With.) J. R. Laundon

leptocarpha Tuck.

leptosperma Nyl. (Seavey & Seavey 2014a)

linearis (Sw.) Ach.

menziesii Taylor

montagnei De Not.

obtusata (Arnold) Bitter

paludosa B. J. Moore

peruviana Ach. Syn.: Desmazieria peruviana

petrina Bowler & Rundel

polymorpha (Lilj.) Ach.

puberulenta Riefner & Bowler

ramificans F. Seavey & J. Seavey (Seavey et al. 2017)

rigida Pers. ex Ach.

roesleri (Hochst. ex Schaerer) Hue Syn.: Fistulariella roesleri

scoparia Vainio Syn.: Fistulariella scoparia

sinensis Jatta

sonorensis Kashiw. & T. H. Nash (Kashiwadani & Nash 2004)

sorediantha Nyl.

stenospora Müll. Arg.
subleptocarpha Rundel & Bowler
subpellucida Müll. Arg.
tenuis (Tuck.) G. Merr.
thrausta (Ach.) Nyl. Syn.: *Alectoria thrausta*
unifolia J. W. Thomson
usnea (L.) R. Howe
willeyi R. Howe
canaliculata (Fr.) Herre (Fink 1935) = *Ramalina calicaris* (Nimis & Martellos 2003)
cephalota Tuck. = *Niebla cephalota*
ceruchis (Ach.) De Not. = *Niebla ceruchis*
cochlearis Zahlbr. = misidentification for North America
combeoides Nyl. = *Niebla combeoides*
crinita Tuck. = *Trichoramalina crinita*
cuspidata (Ach.) Nyl. (Fink 1935) = misidentification for North America
duriaei (De Not.) Bagl. = *R. lacera*
ecklonii auct. = *R. celastri*
ecklonii (Sprengel) G. Meyer & Flotow Not known from North America.
evernioides Nyl. = *R. lacera*
flaccescens Nyl. = *Niebla flaccescens*
homalea Ach. = *Niebla homalea*
hypoprotocetrarica W. L. Culb. = *R. farinacea*
pollinaria (Westr.) Ach. North American records apparently *R. labiosorediata*
laevigata Fr. = *R. celastri*
menziesii Tuck. non Taylor = *R. leptocarpha*
minuscula (Nyl.) Nyl. = *R. dilacerata*
pollinariella Nyl. = *R. roesleri*
populina (Hoffm.) Vainio = *R. fastigiata*
reagens (B. de Lesd.) W. L. Culb. = *R. farinacea*
reticulata (Nöhden) Kremp. = *R. menziesii*
scopulorum (Retz.) Ach. (Fink 1935) = misidentification for North America
subampliata (Nyl.) Fink = misidentification for North America
subfraxinea Nyl. (Fink 1935) = misidentification for North America
testudinaria Nyl. = *Niebla homalea*
usneoides (Ach.) Fr. (Fink 1935) = misidentification for North America
yemensis (Ach.) Nyl. = *R. celastri*

RAMBOLDIA Kantvilas & Elix

blochiana Lendemer & R. C. Harris (Lendemer & Harris 2011)
cinnabarina (Sommerf.) Kalb, Lumbsch & Elix Syns.: *Lecidea cinnabarina*, *Protoblastenia cinnabarina* (Kalb et al. 2008)
elabens (Fr.) Kantvilas & Elix (Kantvilas & Elix 2007) Syns.: *Lecidea elabens*, *L. melancheima*, *Pyrrhospora elabens*
gowardiana (T. Sprib. & Hauck) Kalb, Lumbsch & Elix Syn.: *Pyrrhospora gowardiana* (Kalb et al. 2008)
russula (Ach.) Kalb, Lumbsch & Elix Syns.: *Biatora russula*, *Lecidea russula*, *Protoblastenia russula*, *Pyrrhospora russula* (Kalb et al. 2008)
subcinnabarina (Tønsberg) Kalb, Lumbsch & Elix Syns.: *Lecidea subcinnabarina*, *Pyrrhospora subcinnabarina* (Kalb et al. 2008)

RAMONIA Stizenb.

ablephora (Nyl. ex Hasse) R. C. Harris Syns.: *Lecidea ablephora*
absconsa (Tuck.) Vězda
extensa Lendemer, K. Knudsen & Coppins (Lendemer et al. 2009a)
gyalectiformis (Zahlbr.) Vězda
malmei Vězda

microspora Vězda Syn.: *Biatorella rappii*
rappii Vězda
valenzueliana (Mont.) Stizenb. Syn.: *Maronea porinoidea*
vermispora Lendemer & K. Knudsen (Lendemer & Knudsen 2008a)

REBENTISCHIA P. Karsten
+**massalongoi** (Mont.) Sacc. (Perlmutter et al. 2017)

RECHINGERIA Servít = **LICHINELLA**
cribellifera (Nyl.) Servít = *Lichinella cribellifera*

RECONDITELLA Matzer & Hafellner
***physconiarum** Matzer & Hafellner (Lendemer et al. 2009b)

REFRACTOHILUM D. Hawksw.
***galligenum** D. Hawksw. (Alstrup & Cole 1998)
***peltigerae** (Keissler) D. Hawksw.

REIMNITZIA Kalb
santensis (Tuck.) Kalb Syn.: *Leptotrema santense*, *Thelotrema santense* (Kalb 2001)

REINKELLA Darb. (Tehler et al. 1997)
californica Räsänen = *Hubbsia californica*
parishii Hasse = *Schizopelte parishii* (Ertz & Tehler 2011)
subcrustacea Räsänen = *Schizopelte parishii* (Ertz & Tehler 2011)

RELICINA (Hale & Kurok.) Hale
abstrusa (Vainio) Hale Syn.: *Parmelia abstrusa*
eximbricata (Gyelnik) Hale Syn.: *Parmelia eximbricata*

REQUIENELLA Fabre
subcollapsa (Ellis & Everhart) R. C. Harris (Harris 1995a)
#*seminuda* (Pers. : Fr.) Boise (Aptroot 1991) European, according to Harris (1995a)

RHABDODISCUS Vainio (Rivas Plata et al. 2012)
emersus (Kremp.) Rivas Plata, Lücking & Lumbsch Syn.: *Ocellularia emersa*, *Stegobolus emersus*
granulosus (Tuck.) Rivas Plata, Lücking & Lumbsch Syn.: *Ocellularia granulosa*, *Stegobolus granulatus*, *Thelotrema granulatum*

RHABDOSPORA (Durieu & Mont.) Mont.
lecanorae B. de Lesd. = *pycnidia* of *Lecanora thalli* (Hawksworth 1981, Kalb et al. 1995)

RHAGADOSTOMA Körber
***lichenicola** (De Not.) Keissler (Alstrup & Cole 1998)

RHIZOCARPON Ramond ex DC.
alaxense J. W. Thomson
alpicola (Anzi) Rabenh.
amphibium (Fr.) Th. Fr. (Hinds et al. 2002)
anaperum (Vainio) Vainio
anseris Lynge
arctogenum Gelting (Nash et al. 1998)
atroflavescens Lynge
atrovirellum (Nyl.) Zahlbr. (McCune et al. 2014b)
badioatrum (Flörke ex Sprengel) Th. Fr. Syn.: *Buellia badioatra*
bolanderi (Tuck.) Herre

caesium Fryday (Fryday 2002)
chioneum (Norman) Th. Fr.
cinereonigrum Vainio
cinereovirens (Müll. Arg.) Vainio
concentricum (Davies) Beltr.
cookeanum H. Magn.
copelandii (Körber) Th. Fr.
#dimelaenae Timdal (Feuerer & Timdal 2004)
***diploschistidina** McCune (Lumbsch et al. 2011)
disporum (Nägeli ex Hepp) Müll. Arg.
distinctum Th. Fr.
#effiguratum (Anzi) Th. Fr.
eupetraeoides (Nyl.) Blomb. & Forssell
eupetraeum (Nyl.) Arnold
expallescens Th. Fr.
ferax H. Magn.
frigidum Räsänen
geminatum Körber
geographicum (L.) DC. Syn.: *Buellia geographica*
grande (Flörke ex Flotow) Arnold
hensseniae Brodo
hochstetteri (Körber) Vainio Syn.: *Buellia colludens*, *Lecidea colludens*, *Rhizocarpon colludens*
inarense (Vainio) Vainio
infernum (Nyl.) Lynge (Fryday 2002)
intermediellum Räsänen
intersitum Arnold
jemtlandicum (Malme) Malme
lavatum (Fr.) Hazsl.
lecanorinum Anders
lindsayanum Räsänen Possibly a subspecies of *R. geographicum*
macrosporum Räsänen
malenconianum (Llimona & Werner) Hafellner & Mayrhofer (McCune & Ponzetti 2005)
microsporum Lynge
norvegicum Räsänen
oederi (Weber) Körber
parvum Runemark May not be distinct from *R. norvegicum*
petraeum (Wulfen) A. Massal.
polycarpoides Degel.
polycarpum (Hepp) Th. Fr.
postumum (Nyl.) Arnold
praebadium (Nyl.) Zahlbr.
#pusillum Runemark
quinonum McCune, Timdal & Bendiksbj (McCune et al. 2016)
reductum Th. Fr. (Fryday 2000)
#renneri Poelt
riparium Räsänen Possibly a subspecies of *R. geographicum*
rittokense (Hellbom) Th. Fr.
rubescens Th. Fr. (Fryday 2000)
saanaense Räsänen Syn.: *R. sublucidum*
***santessonii** Timdal
saurinum (W. A. Weber) Bungartz Syn.: *Buellia saurina* (Bungartz & Fryday 2004)
simillimum (Anzi) Lettau
subgeminatum Eitner
sublavatum Fryday (McCune 2017)
submodestum (Vainio) Vainio
subpostumum (Nyl.) Arnold (McCune 2017)

sulphurosum (Tuck. ex Willey) Lendemer (Lendemer et al. 2010)
suomiense Räsänen (MacDonald et al. 2011)
superficiale (Schaerer) Vainio
superficiale subsp. **boreale** Runemark
tetramerum (Vainio) Vainio
timdalii Ihlen & Fryday (Ihlen & Fryday 2002)
umbilicatum (Ramond) Flagey
vernicoideum Fink
#viridiatrum (Wulfen) Körber
 albineum (Tuck.) Fink = *R. obscuratum*
 alboatrum (Hoffm.) Anzi = *Diplotomma alboatrum*
 applanatum (Fr.) Th. Fr. (Hambleton 1910) Probable misidentification of *R. hochstetteri*
 athalloides (Nyl.) Hasse = *Diploschistella athalloides*
 ambiguum (Schaerer) Zahlbr. = *R. distinctum*
 atroalbescens (Nyl.) Zahlbr. = *R. eupetraeoides*
 chionophilum Th. Fr. = *R. alpicola*
 chlorophaeum Hepp ex Leighton = *Diplotomma chlorophaeum*
 colludens (Nyl.) Fryday (Mohr 1901) = *Rhizocarpon hochstetteri*
 concentricum auct. = *R. petraeum*
 concretum (Ach.) Elenkin = *R. geminatum*
 crystalligenum Lynge = *R. superficiale* subsp. **boreale**
 cumulatum J. W. Thomson = *Diplotomma venusta* (as *Buellia*, Feuerer 1991)
 disporum auct. = *R. geminatum*
 infernulum f. *sylvaticum* Fryday (Fryday 2002) = *R. infernulum*
 intermedium Degel. = *R. eupetraeum*
 interponens (Nyl.) Zahlbr. = *R. obscuratum*
 montagnei Körber = *R. disporum*
 obscuratum (Ach.) A. Massal. = misidentification for North America (Fryday 2000); mostly *R. lavatum*/*R. reductum*
 occidentale Lynge = *R. superficiale*
 oidaleum (Nyl.) Fink = *Buellia oidalea*
 oreites (Vainio) Zahlbr. = *R. alpicola*
 penichrum (Tuck.) G. Merr. = *Diplotomma penichrum*
 permodestum Arnold = *R. obscuratum*
 plicatile auct. North American = *R. rubescens* Th. Fr.?
 plicatile (Leighton) A. L. Sm. = *Stereocaulon plicatile* (Leighton) Fryday & Coppins (Fryday & Coppins 1996) Not known from North America
 polare Räsänen = *R. superficiale*
 sphaerosporum Räsänen = *R. macrosporum* Räsänen
 subconcentricum (Körber) Körber (Mohr 1901) = *R. petraeum*
 sublucidum Räsänen = *R. saanaense* Räsänen.
 subtile Runemark = *R. viridiatrum*

RHIZOPLACA Zopf

chrysoleuca (Sm.) Zopf Syns.: *Lecanora chrysoleuca*, *L. rubina*
glaucophana (Nyl. ex Hasse) W. A. Weber Syn.: *Lecanora glaucophana*, *Harpidium glaucophanum*
haydenii (Tuck.) W. A. Weber Syn.: *Lecanora haydenii*
haydenii subsp. **arbuscula** Rosentreter (McCune & Rosentreter 2007)
idahoensis Rosentreter & McCune (McCune & Rosentreter 2007)
marginalis (Hasse) W. A. Weber Syn.: *Lecanora marginalis*
melanophthalma (DC.) Leuckert & Poelt Syn.: *Lecanora melanophthalma*
melanophthalma subsp. **cerebriformis** Rosentreter & B. D. Ryan (McCune & Rosentreter 2007)
melanophthalma subsp. **crispa** Rosentreter & B. D. Ryan (McCune & Rosentreter 2007)
nigromarginata (H. Magn.) Leavitt, Zhao Xin & Lumbsch (Zhao et al. 2016) Syn.: *Lecanora nigromarginata*
novomexicana (H. Magn.) Leavitt, Zhao Xin & Lumbsch (Zhao et al. 2016) Syns.: *Lecanora*

novomexicana, L. thomsonii
opiniconensis (Brodo) Leavitt, Zhao Xin & Lumbsch (Zhao et al. 2016) Syn.: *Lecanora opiniconensis*
phaedrophthalma (Poelt) Leavitt, Zhao Xin & Lumbsch (Zhao et al. 2016) Syn.: *Lecanora phaedrophthalma*
subdiscrepans (Nyl.) R. Sant.
weberi (Ryan) Leavitt, Zhao Xin & Lumbsch (Zhao et al. 2016) Syn.: *Lecanora weberi*
 peltata (Ramond) Leuckert & Poelt = *Protoparmeliopsis peltata*

RHYMBOCARPUS Zopf

***boomii** Etayo & Diederich (Diederich & Etayo 2004a)
 ***cruciatus** (Sherwood, D. Hawksw. & Coppins) Etayo & Diederich (Diederich 2003)
 ***neglectus** (Vainio) Diederich & Etayo Syn.: *Llimoniella neglecta* (Diederich & Etayo 2000)
 ***stereocaulorum** (Alstrup & D. Hawksw.) Etayo & Diederich (Zhurbenko 2010)

RIMELIA Hale & Fletcher = **PARMOTREMA** (Blanco et al. 2005)

cetrata (Ach.) Hale & Fletcher = *Parmotrema cetratum*
 commensurata (Hale) Hale & Fletcher = *Parmotrema commensuratum*
 diffractaica (Essl.) Hale & Fletcher = *Parmotrema diffractaicum*
 reticulata (Taylor) Hale & Fletcher = *Parmotrema reticulatum*
 simulans (Hale) Hale & Fletcher = *Parmotrema simulans*
 subsidiosa (Müll. Arg.) Hale & Fletcher = *Parmotrema subsidiosum*

RIMELIELLA Kurok. = **PARMOTREMA** (Blanco et al. 2005)

conferenda (Hale) Kurok. = *Parmotrema conferendum*
 neotropica (Kurok.) Kurok. = *Parmotrema neotropicum*
 subsumpta (Nyl.) Kurok. = *Parmotrema subsumptum*
 subtinctoria (Zahlbr.) Kurok. = *Parmotrema subtinctorium*

RIMULARIA Nyl.

actinostoma Coppins & Fryday (Coppins & Fryday 2006a)
badioatra (Kremp.) Hertel & Rambold
gibbosa (Ach.) Coppins, Hertel & Rambold Syns.: *Mosigia gibbosa*, *Lecanora bockii*
limborina Nyl. Syns.: *Lecidea limborina*, *L. trochodes*
paradoxa Timdal & W. A. Weber (Timdal 2002b)
 caeca (J. Lowe) Rambold & Printzen = *Lambiella caeca* (Resl et al. 2015)
 furvella (Nyl. ex Mudd) Hertel & Rambold = *Lambiella furvella* (Resl et al. 2015)
 gyrizans (Nyl.) Hertel & Rambold = *Lambiella gyrizans* (Resl et al. 2015)
 impavida (Th. Fr.) Hertel & Rambold = *Lambiella impavida* (Resl et al. 2015)
 #insularis (Nyl.) Rambold & Hertel = *Lambiella insularis* (Spribille et al. 2014a)
 sphacelata (Th. Fr.) Hertel & Rambold = *Lambiella sphacelata* (Resl et al. 2015)

RINODINA (Ach.) Gray

adironackii H. Magn.
albertana Sheard (Sheard 2010)
archaea (Ach.) Arnold
ascociscana (Tuck.) Tuck.
aspera (Borrer) J. R. Laundon (Glew 1999)
athallina H. Magn.
aurantiaca Sheard (Sheard & Mayrhofer 2002)
austroborealis Sheard (Sheard 2010)
badiexcipula Sheard (Sheard & Mayrhofer 2002)
bischoffii (Hepp) A. Massal.
bolanderi H. Magn.
boleana Giralt & H. Mayrhofer (Sheard et al. 2011)
boulderensis Sheard (Sheard & Mayrhofer 2002)
brodoana Sheard, Lendemer & E. Tripp (Lendemer et al. 2014)

brouardii B. de Lesd.
buckii Sheard (Sheard et al. 2012)
bullata Sheard & Lendemer (Sheard et al. 2012)
calcigena (Th. Fr.) Lynge
californiensis Sheard (Sheard & Mayrhofer 2002)
campestris Sheard & C. A. Morse (Sheard et al. 2011)
cana (Arnold) Arnold (Wilhelm 1998)
capensis Hampe
castanomela (Nyl.) Arnold
castanomelodes H. Mayrhofer & Poelt
chrysidata Sheard (Lendemer et al. 2012)
chrysomelaena (Ach.) Tuck. (Lendemer & Sheard 2006)
cinereovirens (Vainio) Vainio (Sheard et al. 2017)
cinnamomea (Th. Fr.) Räsänen Syn.: *Rinodina mniaroea* var. *cinnamomea* (Spribille et al. 2010; Resl et al. 2016)
colobina (Ach.) Th. Fr.
colobinoides (Nyl.) Zahlbr.
coloradiana H. Magn.
confragosa (Ach.) Körber
confragosula (Nyl.) Müll. Arg. (Sheard 2010)
conradii Körber
destituta (Nyl.) Zahlbr.
disjuncta Sheard & Tønsberg
dolichospora Malme (Sheard & Mayrhofer 2002)
efflorescens Malme
endophragmia I. M. Lamb
endospora Sheard (Sheard & Mayrhofer 2002)
excrecens Vainio
exigua (Ach.) Gray
fimbriata Körber (Sheard 2010)
flavosoralifera Tønsberg (Tønsberg 2002)
freyi H. Magn. (Sheard 2010)
gennarii Bagl.
grandilocularis Sheard (Sheard & Mayrhofer 2002)
granuligera H. Magn.
griseosoralifera Coppins (Tønsberg 1993a)
guzzinii Jatta (Sheard 2004)
hallii Tuck. Syn. *Lecanora exigua* f. *pruinosa*
herrei H. Magn.
imshaugii Sheard (Sheard 2010)
innata Sheard (Sheard & Mayrhofer 2002)
intermedia Bagl. (Mayrhofer et al. 2001)
intrusa (Nyl.) Malme (Sheard 2010)
juniperina Sheard (Sheard & Mayrhofer 2002)
laevigata (Ach.) Malme
lecideina H. Mayrhofer & Poelt (McCune 2017)
lepida (Nyl.) Müll. Arg.
lobulata H. Mayrhofer & Sheard (Sheard & Mayrhofer 2002)
luridata (Körber) H. Mayrhofer, Scheid. & Sheard
macrospora Sheard (Sheard & Mayrhofer 2002)
maculans Müll. Arg. (Sheard 2010)
marysvillensis H. Magn.
megistospora Sheard & H. Mayrhofer (Sheard et al. 2011)
metaboliza Vainio
milvina (Wahlenb.) Th. Fr.
mniaroea (Ach.) Körber

mniaroeiza (Nyl.) Arnold (Resl et al. 2016)
notabilis (Lynge) Sheard Syn.: *Buellia notabilis* (Sheard 2010)
#obnascens (Nyl.) H. Olivier (Sheard 2010)
ochracea Lynge (Sheard et al. 2012)
oleae Bagl. (Sheard 2010)
olivaceobrunnea C. W. Dodge & Baker
orculata Poelt & M. Steiner (Mayrhofer & Sheard 2007)
oregana H. Magn.
oxydata (A. Massal.) A. Massal.
pachysperma H. Magn.
pacifica Sheard (Sheard & Mayrhofer 2002)
pallidescens Sheard & Tønsberg (Sheard et al. 2014)
papillata H. Magn.
#parasitica H. Mayrhofer & Poelt
perreagens Sheard (Sheard & Mayrhofer 2002)
pityrea Ropin & H. Mayrhofer (Sheard 2011)
poeltiana Giralt & Obermayer (Sheard 2004)
polyspora Th. Fr.
populicola H. Magn.
pycnocarpa H. Magn. (Sheard 2010)
pyrina (Ach.) Arnold
rinodinoides (Anzi) H. Mayrhofer & Scheid. (Sheard 2004)
riparia Sheard (Sheard 1998)
roscida (Sommerf.) Arnold
santae-monicae H. Magn.
septentrionalis Malme
sheardii Tønsberg
sibirica H. Magn. (Sheard 2010)
siouxiana Sheard (Sheard 2010)
stictica Sheard & Tønsberg
straussii J. Steiner (Sheard 2010)
subminuta H. Magn.
subparieta (Nyl.) Zahlbr. (Resl. et al. 2016)
tephraspis (Tuck.) Herre
terrestris Tomin (Zhurbenko et al. 2006)
terricola Sheard & K. Knudsen (Sheard et al. 2011)
trevisanii (Hepp) Körber (Sheard 2004)
turfacea (Wahlenb.) Körber
venostana Buschardt & H. Mayrhofer (Freebury 2014)
verruciformis Sheard (Sheard & Mayrhofer 2002)
wetmorei Sheard (Sheard 2010)
willei Sheard & Giralt (Sheard 1995)
zwackhiana (Kremp.) Körber
americana B. de Lesd. Identity not established (Sheard 2010)
angelica Stizenb. = *Mobergia angelica*
annulata H. Magn. = *R. subminuta* (Sheard 2010)
applanata H. Magn. = *R. maculans* (Sheard 2010)
archaeoides H. Magn. = *R. olivaceobrunnea*
arctica H. Magn. = *R. olivaceobrunnea* (Sheard 2010)
aterrima Kremp. ex Anzi = *Lichenothelia scopularia*
atrocinerea (Hooker) Körber = misidentification for North America
biatorina Körber = *R. oxydata*
biatorina sensu Fink = *R. destituta* (Sheard 2010)
bolodes Tuck. ex Fink = *Mobergia angelica*
cacuminum (Th. Fr.) Malme = *Amandinea cacuminum*
calculiformis W. A. Weber = *Mobergia calculiformis*

californica H. Magn. = *Dimelaena californica*
 cinereovirens (Vainio) Vainio = *R. turfacea* (Sheard 2010)
 constans (Nyl.) Tuck. = *Maronea constans*
 constrictula H. Magn. = *R. straussii* (Sheard 2010)
 corticola (Arnold) Arnold = *R. capensis*
 dakotensis H. Magn. = *Amandinea dakotensis*
 darrowii E. D. Rudolph ("darrovii") = *R. intermedia*
 degeliana Coppins = *R. subparieta* (Resl. et al. 2016)
 dirinoides Zahlbr. = *Mobergia angelica*
 diskoensis Sheard ined. (Thomson 1997) = *R. endophragmia* (Sheard 2010)
 dissa (Stirton) H. Mayrhofer = *Hafellia dissa*, but not in North America
 exigua var. glauca H. Magn. = *R. oleae* (Sheard 2010)
 euryspora Zahlbr. = *R. luridata*
 farinosa Sheard ined. (Brodo 1988) = *R. efflorescens* (Sheard 2010)
 finkii H. Magn. = *Amandinea dakotensis*
 flavonigella Tuck. = *R. lepida* (Sheard 2010)
 glauca Ropin = *R. freyi* (Sheard 2010)
 granulans Vainio sensu Thomson (1997) = *R. sibirica* (Sheard 2010)
 halei H. Magn. = *R. subminuta* (Sheard 2010)
 hueana Vainio = *Dimelaena oreina*
 hyperborea H. Magn. = *R. septentrionalis* (Sheard 2010)
 inaequalis H. Magn. = *Amandinea dakotensis*
 *insularis (Arnold) Hafellner (Sheard 2004) = *Endohyalina insularis*
 interpolata (Stirton) Sheard (Thomson 1997) = misidentification for N.A. (Sheard 2010)
 iowensis Zahlbr. = *R. cana* (Sheard 2010)
 kentuckyensis Fink = *R. tephrae*
 lecanoides B. de Lesd. Identity not established (Sheard 2010)
 lecanorina (A. Massal.) A. Massal. = misidentification for N. A. (Sheard 2010)
 lecideoides (Nyl.) Kernst. = *R. archaea* (Mayrhofer & Sheard 2007)
 lignaria H. Magn. = *R. trevisanii*
 lignicola Sheard (Sheard & Mayrhofer 2002) = *R. archaea* (Mayrhofer & Sheard 2007)
 lycopodiicola B. de Lesd. Identity not established (Sheard 2010)
 lyngei Sheard ined. (Thomson 1997) = *R. endophragmia* (Sheard 2010)
 magnussonii Sheard ined. (Brodo 1988) = *R. freyi* (Sheard 2010)
 mamillana (Tuck.) W. A. Weber = *Buellia mamillana*
 marysvillensis var. thujae H. Magn. = *R. excrescens* (Sheard 2010)
 microbola Tuck. ex Fink = *Buellia microbola*
 minutissima B. de Lesd. Identity not established (Sheard 2010)
 milliaria Tuck. = *Amandinea milliaria*
 mniaraea var. cinnamomea = *R. cinnamomea* (Resl et al. 2016)
 mucronatula H. Magn. = *R. terrestris*
 nigra Fink = *Buellia nigra*
 nimbose (Fr.) Th. Fr. = *Phaeorrhiza nimbose*
 novomexicana B. de Lesd. = *Dimelaena oreina*
 occidentalis Lynge = *R. calcigena*
 ocellata (Hoffm.) Arnold = *R. lecanorina*, but a misidentification for N. A. (Sheard 2010)
 ochrocea Willey ex Hedrick = *R. destituta* (Sheard 2010)
 orbata (Ach.) Vainio = *R. turfacea*
 oreina (Ach.) A. Massal. = *Dimelaena oreina*
 palustris Willey nom. inval. = *R. populicola* (Sheard 2010)
 penardiana Müll. Arg. = a *Buellia* sp. (Sheard 2010)
 pennsylvanica H. Magn. = *Amandinea dakotensis*
 phaeocarpa (Sommerf.) Vainio = *Phaeorrhiza nimbose*
 platyloba Willey = nom. nudum = *Mobergia calculiformis*
 pyriniformis H. Magn. = *Amandinea dakotensis*
 radiata Tuck. = *Dimelaena radiata*

roboris (Dufour ex Nyl.) Arnold Known only from Mexico
 sabulosa Tuck. = *R. intermedia*
 salina Degel. = *R. gennarii*
 sexigua Ach. (Claassen 1912) Apparent Freudian typographical error for *R. exigua*
 silicicola B. de Lesd. Identity not established (Sheard 2010)
 sophodes (Ach.) A. Massal. = misidentification for North America
 suboreina B. de Lesd. = *Dimelaena oreina*
 subsophodes (Nyl. ex Lindsay) Zahlbr. = *R. ascociscana* (Sheard 2010)
 succedens Nyl. (Fink 1935) = apparent misidentification for North America (Tucker & Ryan 2006)
 subplumbea H. Magn. = *Amandinea dakotensis*
 thomae Tuck. (Fink 1935) = *Buellia mamillana* (Bungartz et al. 2004)
 thomsonii Sheard (Sheard 1995) = *R. santae-monicae* (Sheard 2010)
 thujae (H. Magn.) Sheard = *R. excrescens*
 thysanota Tuck. = *Dimelaena thysanota*
 vegasii B. de Lesd. Identity not established (Sheard 2010)
 verrucosa G. K. Merr. ex Sheard ined. Identity uncertain (Sheard 2010)
 vezdae H. Mayrhofer (Harris & Ladd 2005, Lendemer & Macklin 2006) = *R. destituta* (Sheard 2010)
 violascens H. Magn. = *R. zwackhiana*

ROBERGEA Desm.

pupula (Nyl.) R. C. Harris Syn.: *Belonia americana* Excluded as a non-lichen

ROCCELLA DC.

decipiens Darb.
gracilis Bory (Tehler 2006)
 babingtonii Mont. = *R. decipiens*
 babingtonii sensu auct. North American = *R. gracilis* (Tehler 2006)
 difficilis Darb. = *R. gracilis* (Tehler 2002b, 2006)
 fimbriata Darb. = *R. decipiens* (Tehler 2002b; Tehler et al. 2004)
 fuciformis (L.) DC. = misidentification for North America (Tehler et al. 2004)
 fucoides (Dickson) Vainio = *R. phycopsis* (Tehler 2002a, 2003)
 leucophaea Tuck. = *Dendrographa leucophaea*
 montagnei Bél. = misidentification for North America (Tehler et al. 2004)
 peruensis Kremp. = *R. gracilis* (Tehler 2006)
 phycopsis (Ach.) Ach. = misidentification for North America (Tehler et al. 2004)
 tinctoria DC. = misidentification for North America (Tehler et al. 2004)

ROCCELLINA Darb.

conformis Tehler = *Dendrographa conformis* (Ertz & Tehler 2011)
 franciscana (Zahlbr. ex Herre) Follmann = *Dendrographa franciscana* (Ertz & Tehler 2011)

ROCKEFELLERA Lendemer & E. Tripp

crossophylla Lendemer & E. Tripp (Lendemer et al. 2017) Syns.: *Parmeliella crossophylla*, *Pannaria crossophylla*, *Santessoniella crossophylla* (Jørgensen 2000c, 2005)

ROMJULARIA Timdal

lurida (Ach.) Timdal Syns.: *Mycobilimbia lurida*, *Lecidea lurida*, *L. petri*, *Biatora lurida*, *B. petri*, *Psora lurida* (Timdal 2007)

ROPALOSPORA A. Massal.

chlorantha (Tuck.) S. Ekman Syn.: *Bacidia chlorantha*
hibernica (P. James & Poelt) Tønsberg
lugubris (Sommerf.) Poelt Syns.: *Bacidia lugubris*, *Bilimbia caudata*, *Lecidea lugubris*, *L. caudata*
viridis (Tønsberg) Tønsberg

ROSELLINIELLA Vainio (Goward et al. 1996)

- ***atlantica** Matzer & Hafellner (Etayo & Breuss 1998)
- ***cladoniae** (Anzi) Matzer & Hafellner (Diederich 2003)
- ***microthelia** (Wallr.) Nik. Hoffm. & Hafellner (Kocourková 2007)
- ***nephromatis** (Crouan) Matzer & Hafellner (Goward et al. 1996)
- ***peltigericola** D. Hawksw. & Miądl. (Zhurbenko & Laursen 2003)
- ***stereocaulorum** Zhurb., Kukwa, & Oset (Zhurbenko et al. 2009)

ROSELLINIOPSIS Matzer & Hafellner

- ***gelidaria** (Mudd) Matzer Syn.: Polycoccum gelidarium
- ***tartaricola** (Nyl.) Matzer (Hafellner 2004e)
- ***tropica** Matzer & Hafellner (Lendemer & Harris 2014b)\

ROSELLINULA R. Sant. (Kalb et al. 1995)

- ***haplospora** (Nyl.) R. Sant. (Lendemer & Harris 2012)
- ***kalbii** (Hafellner) Hafellner & R. W. Rogers (Kalb et al. 1995)

ROSTANIA Trevisan (Otálora et al. 2014)

- callibotrys** (Tuck.) Otálora, P. M. Jørg. & Wedin Syn.: Collema callibotrys
- ceranisca** (Nyl.) Otálora, P. M. Jørg. & Wedin Syn.: Collema arcticum, C. ceraniscum
- occultata** (Bagl.) Otálora, P. M. Jørg. & Wedin Syn.: Collema occultatum
- quadrifida** (D. F. Stone & McCune) McCune (McCune et al. 2014b)

RUFOPLOCA Arup, Søchting & Frödén (Arup et al. 2013)

- arenaria** (Pers.) Arup, Søchting & Frödén Syn.: Caloplaca arenaria
- oxfordensis** (Fink) Arup, Søchting & Frödén Syn.: Caloplaca oxfordensis

RUSAVSKIA S. Y. Kondr. & Kärnefelt (Arup et al. 2013)

- elegans** (Link) S. Y. Kondr. & Kärnefelt Syn.: Caloplaca elegans, C. splendens, Placodium elegans, Xanthoria elegans
- papillifera** (Vainio) S. Y. Kondr. & Kärnefelt Syn.: Xanthoria papillifera
- sorediata** (Vainio) S. Y. Kondr. & Kärnefelt Syn.: Caloplaca sorediata, Xanthoria sorediata

SACCOMORPHA Elenkin = **PLACYNTHIELLA**

- hyporhoda (Th. Fr.) Clauzade & Cl. Roux = Placynthiella hyporhoda
- icmalea (Ach.) Clauzade & Cl. Roux = Placynthiella icmalea
- oligotropha (J. R. Laundon) Clauzade & Cl. Roux = Placynthiella oligotropha
- uliginosa (Schrader) Hafellner = Placynthiella uliginosa

SAGEDIA Ach. (Nordin et al. 2010)

- mastrucata** (Wahlenb.) A. Nordin, Savić & Tibell Syn.: Aspicilia mastrucata, Lecanora mastrucata
- simoënsis** (Räsänen) A. Nordin, Savić & Tibell Syn.: A. simoënsis
- cestrensis (Tuck.) Tuck. (Mohr 1901) = Pseudosagedia cestrensis

SAGEDIOPSIS (Sacc.) Vainio

- ***aquatica** (Stein) Triebel (Brodo 1995)
- ***barbara** (Th. Fr.) R. Sant. & Triebel Syn.: Gongylia nadvornikii
- ***campsteriana** (Lindsay) D. Hawksw. & R. Sant. Syn.: Metasphaeria tartarina
- ***lomnitzensis** (Stein) Orange (Spribille et al. 2010)

SAGIOLECHIA A. Massal.

- protuberans** (Ach.) A. Massal.
- rhexoblephara** (Nyl.) Zahlbr.

SANGUINOTREMA Lücking

- wightii** (Taylor) Lücking Syn.: Leptotrema wightii, Myriotrema wightii, Thelotrema ravenelii, T. wightii (Lücking et al. 2015)

SANTESSONIELLA Henssen (Henssen 1997)

arctophila (Th. Fr.) Henssen var. **arctophila** Syn.: *Parmeliella arctophila* (Henssen 1997)

grisea (Hue) Henssen (Tønsberg & Henssen 1999)

crossophylla (Tuck.) P. M. Jørg. = *Rockefellerella crossophylla*

saximontana T. Sprib., P. M. Jørg. & M. Schultz (Spribille et al. 2007) = *Leciophysma saximontana* (Ekman et al. 2014)

SARCOGRAPHA Fée

labyrinthica (Ach.) Müll. Arg.

medusulina (Nyl.) Müll. Arg.

tricosa (Ach.) Müll. Arg.

intricans (Nyl.) Müll. Arg. = *Phaeographis intricans*

SARCOGYNE Flotow

albothallina K. Knudsen, T. B. Wheeler, Kocourk. & M. Westb. (Knudsen et al. 2016)

arenosa (Herre) Knudsen & S. M. Standley (Knudsen 2005b) Syn.: *Acarospora arenosa*

clavus (DC.) Kremp. Syn.: *Biatorella clavus*

crustacea K. Knudsen & Kocourk. (Knudsen & Kocourková 2010a) Syn.: *Biatorella terrena*

dakotensis H. Magn.

desolata (H. Magn.) K. Knudsen & Standley Syn.: *Acarospora desolata* (Knudsen & Standley 2007)

hypophaea (Nyl.) Arnold Syn.: *Biatorella hypophaea* (Knudsen et al. 2013b)

integra (B. de Lesd.) H. Magn.

magnussonii B. de Lesd.

mitziae K. Knudsen, Kocourk. & McCune (Knudsen et al. 2013a)

novomexicana H. Magn.

plicata H. Magn. (Knudsen & Kocourková 2009a, 2011) Syn.: *Biatorella plicata*

reebiae K. Knudsen (Knudsen & Standley 2007)

regularis Körber Syn.: *Biatorella pruinosa*

similis H. Magn.

***sphaerospora** J. Steiner (Lendemer et al. 2009b)

squamosa K. Knudsen & McCune (Knudsen & McCune 2013)

athroocarpa H. Magn. = *Acarospora badiofusca* (Knudsen & Kocourková 2013)

***bicolor** H. Magn. = *Polysporina subfuscescens* (Knudsen & Kocourková 2008a)

bolleana H. Magn. = *S. arenosa* (Lendemer et al. 2009c)

californica H. Magn. = *S. similis* (Knudsen & Lendemer 2005a)

lapponica (Ach. ex Schaerer) K. Knudsen & Kocourk. (Knudsen 2005c) N.A. reports are *Polysporina subfuscescens* (Knudsen & Kocourková 2008a)

oligospora H. Magn. = *Polysporina gyrocarpa*

privigna auct. = *S. hypophaea* (Knudsen et al. 2013b)

pruinosa auct. = *S. regularis*

simplex (Davies) Nyl. = *Polysporina simplex*

SARCOPYRENIA Nyl. (Harris 1995b)

***bacillosa** (Nyl. ex Hasse) Nav.-Ros. & Hladun Syn.: *Hassea bacillosa*, *Verrucaria bacillosa* (Navarro-Rosinés & Hladun 2004)

***calcare**a Lendemer & R. C. Harris (Lendemer et al. 2013)

***cylindrospora** (P. Crouan & H. Crouan) M. B. Aguirre (Harris 1995b)

SARCOSAGIUM A. Massal.

campestre (Fr.) Poetsch & Schiedem. Syn.: *Biatorella campestris*

SAREA Fr.

⁺**difformis** (Fr.) Fr.

⁺**resinae** (Fr.) Kuntze Syn.: *Biatorella resinae*

SCHADONIA Körber

- alpina** Körber Syns.: *Lopadium alpinum*, L. *gemellum*
fecunda (Th. Fr.) Vězda & Poelt Syn.: *Lopadium fecundum*

SCHAERERIA Körber

- brunnea** Björk, T. Sprib. & T. B. Wheeler (Spribille et al. 2009)
cinereorufa (Schaerer) Th. Fr. Syn.: *Lecidea cinereorufa*, L. *rugosa*
corticola Muhr & Tønsberg
dolodes (Nyl.) Schmull & T. Sprib. (Schmull & Spribille 2005)
endocyanea (Stirton) Hertel & Gotth. Schneider Syn.: *Lecidea epiiodiza*
fuscocinerea (Nyl.) Clauzade & Cl. Roux Syns.: *Aspicilia quartzitica*, *Lecidea fuscocinerea*, L. *tenebrosa*
#**parasemella** (Nyl.) Lumbsch Syns.: *Hafellnera parasemella*, *Lecidea parasemella* (Lumbsch 1997) *tenebrosa* (Flotow) Hertel & Poelt = *S. fuscocinerea*

SCHISMATOMMA Flotow & Körber ex A. Massal.

- glaucescens** (Nyl. ex Willey) R. C. Harris Syn.: *Arthonia glaucescens*
graphidioides (Leighton) Zahlbr. (Lendemer & Harris 2016)
pericleum (Ach.) Branth & Rostrup
rappii (Zahlbr.) R. C. Harris Syn.: *Haematomma rappii*
rediunta (Hasse) Tehler Syn.: *Dirina rediunta*
vernans (Tuck.) Zahlbr.
abietinum (Humb.) A. Massal. = *S. pericleum*
californicum (Tuck.) Zahlbr. = *Sigridia californica*
cupressum Herre = *Dendrographa franciscana*
decolorans (Turner & Borrer ex Sm.) Clauz. & Vězda = *Dendrographa decolorans* (Ertz & Tehler 2011)
hypothallinum (Zahlbr.) Hasse = *Lecanographa hypothallina*
ocellatum (Nyl.) Zahlbr. = *Mazosia ocellata*
palidellum auct. = *Opegrapha anguinella*
pluriloculare (Zahlbr.) Zahlbr. (Tehler 2002c) = *Paraschismatomma pluriloculare* (Ertz & Tehler 2011)
ravenelii (Tuck.) Zahlbr. = *Opegrapha ravenelii*
subattingens (Nyl.) Zahlbr. = *Lecanactis epileuca*

SCHIZOPELTE Th. Fr.

- californica** Th. Fr. Syn.: *Combea californica*
crustosa Ertz & Tehler (Ertz & Tehler 2011) Syns.: *Chiodecton californicum*, *Llimonaea californica*, *Sclerophyton californicum*
parishii (Hasse) Ertz & Tehler (Ertz & Tehler 2011)
lumbricoides (W. A. Weber) Ertz & Tehler (Ertz & Tehler 2011) Previously regarded as a synonym of *Hubbsia californica*, but when recognized as separate, it is known only from Mexico

SCLEROCOCCUM Fr.

- ***crassitunicatum** Zhurb., Diederich & U. Braun (Zhurbenko & Pino-Bodas 2017)
***montagnei** Hafellner (Diederich 2004a)
***simplex** D. Hawksw. (Cole & Hawksworth 2001)
**parmeliae* Etayo & Diederich (Kocourková & Knudsen 2009d) = *Cladophialophora parmeliae*

SCLEROPHORA Chevall.

- amabilis** (Tibell) Tibell (Goward et al. 1996)
coniophaea (Norman) J.-E. Mattsson & Middelb. (Goward et al. 1996)
farinacea (Chevall.) Chevall.
nivea (Hoffm.) Tibell Syns.: *Coniocybe nivea* (Hoffm.) Arnold non Tuck. & Mont., *C. pallida*
peronella (Ach.) Tibell (Goward et al. 1996)

SCLEROPHYTON Eschw.

elegans Eschw. Syns.: Chiodecton inscriptum, Enterographa elegans (Sparrius 2004b)
seriale (Ach.) Sparrius (Seavey & Seavey 2014a)
californicum (Tuck.) Hasse = Schizopelte crustosa
cerebriforme Egea & Torrente = Sparria cerebriformis
inscriptum (Nyl.) Müll. Arg. = S. elegans
occidentale Herre = Dactylospora cf. parasitica, on a Pertusaria sp. (Sparrius 2004b)

SCOLICIOSPORUM A. Massal.

abietinum T. Sprib. (Spribille et al. 2009)
chlorococcum (Stenh.) Vězda Syn.: Bacidia chlorococca
gallurae Vězda (McCune 2017)
intrusum (Th. Fr.) Hafellner Syn.: Carbonea intrusa (Hafellner 2004c)
pensylvanicum R. C. Harris (Harris 2009)
pruinsum (P. James) Vězda (Tønsberg 1997 [1998])
sarothamni (Vainio) Vězda
umbrinum (Ach.) Arnold Syn.: Bacidia umbrina
umbrinum var. **compacta** (Körber) Vězda

SCULPTOLUMINA Marbach

japonica (Tuck.) Marbach Syn.: Buellia japonica (Giralt et al. 2009)

SCUTULA Tul.

***cladoniicola** Alstrup & D. Hawksw. (Hansen & Alstrup 1995)
 ***dedicata** Triebel, Wedin & Rambold (Triebel et al. 1997)
 ***epiblastematica** (Wallr.) Rehm (Triebel et al. 1997)
 ***heeri** (Hepp.) Trevisan (Spribille et al. 2010)
 ***miliaris** (Wallr.) Trevisan
 ***stereocaulorum** (Anzi) Körber
 ***tuberculosa** (Th. Fr.) Rehm (Wedin et al. 2007)

SCYTINIUM (Ach.) Gray (Otálora et al. 2014)

apalachense (Tuck.) Otálora, P. M. Jørg. & Wedin Syns.: Collema apalachense, Leptogium apalachense
aquale (Arnold) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium aquale
aragonii (Otálora) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium aragonii
californicum (Tuck.) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium californicum
callopismum (A. Massal.) Otálora, P. M. Jørg. & Wedin Syns.: Collema callopismum, C. callopismum var. rhyparodes
cellulosum (P. M. Jørg. & Tønsberg) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium cellulosum
contortum (Sierk) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium contortum
dactylinum (Tuck.) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium dactylinum
erectum (Sierk) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium erectum
fragrans (Sm.) Ach. Syns.: Collema fragrans, C. microphyllum
gelatinosum (With.) Otálora, P. M. Jørg. & Wedin Syns.: Leptogium gelatinosum, L. scotinum, L. sinuatum
imbricatum (P. M. Jørg.) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium imbricatum
intermedium (Arnold) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium intermedium
juniperinum (Tuck.) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium juniperinum
kauaiense (H. Magn.) Otálora, P. M. Jørg. & Wedin Syn.: Collema kauaiense
lichenoides (L.) Otálora, P. M. Jørg. & Wedin Syns.: Leptogium lacerum, L. lichenoides
palmatum (Hudson) Gray Syns.: Leptogium corniculatum, L. palmatum
parculum (Nyl.) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium parculum
platynum (Tuck.) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium platynum
plicatile (Ach.) Otálora, P. M. Jørg. & Wedin Syns.: Collema plicatile, Leptogium microdium, L. plicatile
polycarpum (P. M. Jørg. & Goward) Otálora, P. M. Jørg. & Wedin Syn.: Leptogium polycarpum

pulvinatum (Hoffm.) Otálora, P. M. Jørg. & Wedin (McCune et al. 2014b)
rivale (Tuck.) Otálora, P. M. Jørg. & Wedin Syn.: *Leptogium rivale*, *Polychidium rivale*
schraderi (Bernh.) Otálora, P. M. Jørg. & Wedin Syn.: *Leptogium schraderi*
singulare T. Carlberg & P. M. Jørg. (Carlberg et al. 2016)
siskiyouensis (D. F. Stone & Ruchty) Otálora, P. M. Jørg. & Wedin Syn.: *Leptogium siskiyouensis*
subaridum (P. M. Jørg. & Goward) Otálora, P. M. Jørg. & Wedin Syn.: *Leptogium subaridum*
subtile (Schrader) Otálora, P. M. Jørg. & Wedin Syn.: *Leptogium minutissimum*, *L. perminutum*, *L. subtile*
tacomae (P. M. Jørg. & Tønsberg) McCune (McCune et al. 2014b) Syn.: *Leptogium tacomae*
tenuissimum (Dickson) Otálora, P. M. Jørg. & Wedin Syn.: *Leptogium lividofuscum*, *L. tenuissimum*
teretiusculum (Wallr.) Otálora, P. M. Jørg. & Wedin Syn.: *Leptogium intricatulum*, *L. teretiusculum*
turgidum (Ach.) Otálora, P. M. Jørg. & Wedin Syn.: *Leptogium turgidum*

SECOLIGA Norman = GYALECTA

carneoluteola (Tuck.) Müll. Arg. (Fink 1935) = *Cryptolechia carneoluteola* (Tuck.) Kalb Probable misidentification for North America (Esslinger & Tucker 2009)
geoica (Wahlenb. ex Ach.) Körber = *Gyalecta geoica*

SEGESTRIA Fr. (Harris 1995a)

lectissima Fr. Syn.: *Porina lectissima* (Harris 1995a)
leptalea (Durieu & Mont.) R. C. Harris Syn.: *Porina leptalea* (Harris 1995a)
mammillosa Th. Fr. Syn.: *Porina mammillosa* (Harris 1995a)
octomera (Müll. Arg.) R. C. Harris (Harris 1995a)
rubentior (Stirton) R. C. Harris (Harris 1995a)
nucula Fr. (Mohr 1901) = *Porina nucula*

SEIROPHORA Poelt (Frödén & Lassen 2004)

aurantiaca (R. Br.) Frödén Syn.: *Teloschistes arcticus* (Frödén & Lassen 2004)
californica (Sipman) Frödén Syn.: *Teloschistes californicus*
contortuplicata (Ach.) Frödén Syn.: *Teloschistes contortuplicatus*

SIGRIDEA Tehler

californica (Tuck.) Tehler Syn.: *Dirina californica*, *D. hassei*, *Platygrapha californica*, *Schismatomma californicum*

SILOBIA M. Westb. & Wedin (Westberg et al. 2011a) = MYRIOSPORA Nägeli ex Uloth (Arcadia & Knudsen 2012)

hassei (Herre) K. Knudsen (Knudsen 2011b) = *Myriospora hassei* (Arcadia & Knudsen 2012)
rhagadiza (Nyl.) M. Westb. (Westberg et al. 2011a) = *Myriospora rhagadiza* (Arcadia & Knudsen 2012)
scabrida (H. Magn.) M. Westb. (Westberg et al. 2011a) = *Myriospora scabrida* (Arcadia & Knudsen 2012)
smaragdula (Wahlenb.) M. Westb. & Wedin (Westberg et al. 2011a) = *Myriospora smaragdula* (Arcadia & Knudsen 2012)

SIPHULA Fr.

ceratites (Wahlenb.) Fr.
dactyliza Nyl. = a *Stereocaulon* spp. (Kantvilas 2002)
simplex (Taylor) Nyl. = *S. ceratites*

SKYTTEA Sherwood, D. Hawksw. & Coppins

***caesii** Diederich & Etayo (Diederich & Etayo 2000)
 ***cismonicae** Hafellner (Hafellner 2000)
 ***dacampiae** Zhurb. (Zhurbenko 2013)
 ***elachistophora** (Nyl.) Sherwood & D. Hawksw.

- ***gregaria** Sherwood, D. Hawks. & Coppins (Diederich & Etayo 2000)
- ***insignis** Driscoll, S. R. Clayden & R. C. Harris (Driscoll et al. 2016)
- ***lecanorae** Diederich & Etayo (Diederich & Etayo 2000)
- ***mayrhoferi** Diederich & Etayo (Diederich & Etayo 2000)
- ***nitschkei** (Körber) Sherwood, D. Hawks. & Coppins (Diederich & Etayo 2000)
- ***pertusariicola** Diederich & Etayo (Diederich & Etayo 2004b)
- ***radiatilis** (Tuck.) R. Sant., Etayo & Diederich (Diederich & Etayo 2000)
- ***richardsonii** Iturr. & D. Hawksw. (Iturriaga & Hawksworth 2004)
- ***tavaresae** R. Sant., Etayo & Diederich (Diederich & Etayo 2000)
- ***tephromelarum** Kalb & Hafellner (Diederich & Etayo 2004b)

SKYTTELLA D. Hawksw. & R. Sant.

- ***mulleri** (Willey) D. Hawksw. & R. Sant.

SOLENOPSORA A. Massal.

- candicans** (Dickson) J. Steiner
- cladonioides** B. D. Ryan & Timdal (Ryan & Timdal 2002, 2011)
- crenata** (Herre) Zahlbr.
- cyathiformis** (Szatala) van den Boom Syn.: *Lecania cyathiformis* (van den Boom & Ryan 2004b)
- holophaea** (Mont.) Samp. Syns.: *Lecanora holophaea*, *Candelariella holophaea*
- hassei** (Zahlbr.) Zahlbr. = *Lecania hassei* (Zahlbr.) W. Noble

SOLITARIA Arup, Söchting & Frödén (Arup et al. 2013)

- chrysophthalma** (Degel.) Arup, Söchting & Frödén Syn.: *Caloplaca chrysophthalma*

SOLORINA Ach.

- bispora** Nyl.
- bispora** var. **subspungiosa** (Zschacke) Frey (Zhurbenko et al. 2006)
- crocea** (L.) Ach.
- monospora** Gyelnik (McCune et al. 2014b)
- octospora** (Arnold) Arnold
- saccata** (L.) Ach.
- spongiosa** (Ach.) Anzi

SOLORINARIA (Vainio) Gyelnik

- despreauxii** (Mont.) Fink = *Heppia despreauxii*

SOLORINELLA Anzi = **GYALIDEA** (Aptroot & Lücking 2003)

- asteriscus** Anzi = *Gyalidea asteriscus* (Aptroot & Lücking 2003)

SPARRIA Ertz & Tehler (Ertz & Tehler 2011)

- cerebriformis** (Egea & Torrente) Ertz & Tehler Syn.: *Llimonaea cerebriformis*, *Sclerophyton cerebriforme*

SPEERSCHNEIDERA Trevisan

- euploca** (Tuck.) Trevisan Syn.: *Teloschistes euplocus*

SPHAERELLOTHECIUM Zopf

- ***abditum** Triebel
- ***araneosum** (Rehm ex Arnold) Zopf
- ***atryneae** (Arnold) Cl. Roux & Triebel (Hafellner et al. 2002)
- ***breussii** K. Knudsen, Kocourk. & Etayo (Knudsen, Kocourková & Etayo 2009)
- ***cladoniae** (Alstrup & Zhurb.) Hafellner (Knudsen & Kocourková 2010b)
- ***cladoniicola** E. S. Hansen & Alstrup (Hansen & Alstrup 1995)
- ***coniodes** (Nyl.) Cl. Roux & Diederich (Hodkinson et al. 2009)
- ***contextum** Triebel

- #**gowardii** Alstrup & M. S. Cole (Alstrup & Cole 1998)
- ***minutum** Hafellners
- ***parmeliae** Diederich & Etayo (Diederich 2003)
- ***propinquellum** (Nyl.) Cl. Roux & Triebel Syn.: *Stigmidium congestum* (for North America)
- ***reticulatum** (Zopf) Etayo Syn.: *Echinothecium reticulatum* (Kocourková et al. 2008)
- ***stereocaulorum** Zhurb. & Triebel (Zhurbenko 2010)
- ***thamnoliae** Zhurb. (Zhurbenko 2012)
- ***araneosum** var. *cladoniae* Alstrup & Zhurb. (Zhurbenko & Alstrup 2004) = *S. cladoniae*

SPHAERIA Haller = HYPOXYLON

bignoniae Schwein. = *Granulopyrenis hymnothora*

SPHAEROPEZIA Sacc. (Baloch et al. 2013b)

- ***bryoriae** (Diederich & Etayo) Baloch & Wedin Syn.: *Odontotrema intermedia*
- ***cucularis** (Norman) Baloch & Wedin Syn.: *Lethariicola cuculuris*
- ***intermedia** (Diederich, Zhurb. & Etayo) Baloch & Wedin Syn.: *Odontotrema intermedium*
- ***lecanorae** (Diederich & G. Marson) Baloch & Wedin Syn.: *Odontotrema lecanorae*
- ***melaneliae** (Diederich & Zhurb.) Baloch, Gilenstam & Wedin Syn.: *Odontotrema melaneliae*
- ***mycoblasti** Diederich, Baloch & Wedin (Baloch et al. 2013b)
- ***ochrolechiae** (Diederich, Holien & Zhurb.) Baloch & Wedin Syn.: *Odontotrema ochrolechiae*
- ***santessonii** (Zhurb., Etayo & Diederich) Baloch & Wedin Syn.: *Odontotrema santessonii*
- ***sipei** (Grumann) Baloch & Wedin Syn.: *Lethariicola sipei*, *Odontotrema sipei*
- ***thamnoliae** (Zhurb., Diederich & Etayo) Baloch & Wedin Syn.: *Odontotrema thamnoliae*

SPHAEROPHORUS Pers.

- fragilis** (L.) Pers.
- globosus** (Hudson) Vainio
- tuckermanii** Räsänen (Wedin et al. 2009)
- venerabilis** Wedin, Högnabba & Goward (Wedin et al. 2009)
- globiferus* (L.) D.C. var. *gracilis* Müll. Arg. = *S. tuckermanii* (Wedin et al. 2009)
- globosus* var. *gracilis* auct. = *S. tuckermanii*
- melanocarpus* (Sw.) DC. = *Bunodophoron melanocarpus*

SPHAERULINA Sacc.

- ***dolichotera** (Nyl.) Vouax (Esslinger & Egan 1995)

SPHINCTRINA Fr.

- ***anglica** Nyl. Syns.: *Mycocalicium microcephalum*, *Calicium microcephalum*
- ***benmargana** Selva (Selva 2004)
- ***leucopoda** Nyl.
- ***pallidella** (Willey) Selva (Selva 2004)
- ***tubaeformis** A. Massal.
- ***turbinata** (Pers. : Fr.) De Not. Syn.: *Calicium turbinatum*
- **gelasinata* (With.) Zahlbr. (Fink 1935) = *S. turbinata* (Santesson et al. 2004)
- **microcephala* (Sm.) Körber = *S. anglica*
- **microcephala* Nyl. = *S. tubaeformis*

SPHINCTRINELLA Nádv. = MYCOCALICIUM

calicioides Nádv. = *Mycocalicium calicioides*

SPILONEMA Bornet

- americanum** (Henssen & Tønsberg) T.Sprib., Muggia & Tønsberg Syn.: *Spilonemella americana* (Spribille et al. 2014b)
- paradoxum** Bornet
- revertens** Nyl.

dendroides Henssen = Erinacellus dendroides (Henssen) T. Sprib., Muggia & Tønsberg (Spribille et al. 2014b)

SPIILONEMELLA Henssen & Tønsberg (Henssen & Tønsberg 2000)
americana Henssen & Tønsberg = Spilonema americanum (Spribille et al. 2014b)

SPIROGRAPHA Zahlbr.
*fusisporella (Nyl.) Zahlbr. (Alstrup & Cole 1998)

SPORASTATIA A. Massal.
polyspora (Nyl.) Grumann
testudinea (Ach.) A. Massal. Syn.: Biatorella kulshanensis, B. testudinea
cinerea (Schaerer) Körber = S. polyspora

SPORODICTYON A. Massal.
cruentum (Körber) Körber Syn.: Polyblastia cruenta (Fryday 2006, Savić & Tibell 2009, Spribille et al. 2010)
minutum Savić & Tibell (McCune et al. 2014b)
schaererianum A. Massal. (Hafellner 2010)
terrestre (Th. Fr.) Savić & Tibell Syn.: Polyblastia terrestris (Savić & Tibell 2009), Verrucaria obtenta (Dillman et al. 2012)

SPORODOPHORON Frisch, Y. Ohmura, Ertz & G. Thor (Frisch et al. 2015)
americanum (Lendemer, E. Tripp & R. C. Harris) Ertz & Frisch (Frisch et al. 2015)

SPOROPodium Mont.
marginatum Lücking & Lumbsch (Lücking et al. 2011b)
phyllocharis (Mont.) A. Massal.

SPOROSTIGMA Grube
melasporum (Tuck.) Grube Syn. Arthonia melaspora (Grube 2001)

SQUAMARINA Poelt
cartilaginea (With.) P. James
lentigera (Weber) Poelt Syn.: Lecanora lentigera
crassa (Hudson) Poelt = S. cartilaginea
degelii Poelt = Lecanora neodegelii

SQUAMULEA Arup, Söchting & Frödén (Arup et al. 2013)
galactophylla (Tuck.) Arup, Söchting & Frödén Syn.: Caloplaca galactophylla, Placodium galactophylla
parviloba (Wetmore) Arup, Söchting & Frödén Syn.: Caloplaca parviloba
squamosa (B. de Lesd.) Arup, Söchting & Frödén Syn.: Caloplaca squamosa
subsoluta (Nyl.) Arup, Söchting & Frödén Syn.: Caloplaca irubescens, C. modesta, C. subsoluta

STAUROLEMMMA Körber
carolinianum P. M. Jørg. (Jørgensen 2004)

STAUROTHELE Norman
arctica Lynge
areolata (Ach.) Lettau
bacilligera (Arnold) Arnold (Lendemer 2008)
clopimoides (Bagl. & Carestia) J. Steiner
discedens (Nyl.) Zahlbr.
drummondii (Tuck.) Tuck. Syn: Endocarpon drummondii, E. wilmsoides
effigurata J. W. Thomson

elenkinii Oxner
fissa (Taylor) Zwackh
frustulenta Vainio (McCune et al. 2014b)
guestphalica (Lahm ex Körber) Arnold (Lendemer 2008)
lecideoides B. de Lesd.
monicae (Zahlbr.) Wetmore Syn.: *Endocarpon monicae*
orispruinosa J. W. Thomson
polygonia B. de Lesd.
rufa (A. Massal.) Zschacke (McCune 2017)
rugosa J. W. Thomson
rupifraga (A. Massal.) Arnold Syn. : *Verrucaria terebrata*
verruculosa J. W. Thomson
ambrosiana (A. Massal.) Zschacke = *S. drummondii* for North American records
circinata Tuck. = *S. fissa*
catalepta auct. N. Am. = mostly *S. monicae*
clopima (Wahlenb.) Th. Fr. [epithet to be proposed for rejection under I.C.B.N. Art.69 (Thomson 1991)] = *S. drummondii*
diffRACTella (Nyl.) Tuck. = *Willeya diffRACTella*
fuscocuprea (Nyl.) Zschacke = *S. drummondii*
glacialis Herre = *S. fissa*
hazslinskyi (Körber) J. Steiner = *S. fissa*
hymenogonia (Nyl.) Th. Fr. = *S. discedens* for North American records
perradiata Lynge = *S. drummondii*
sessilis H. Magn. = *S. elenkinii*
succedens (Rehm) Arnold = *S. drummondii* for North American record
tenuissima Degel. = *Endocarpon tenuissimum*
umbrina (Wahlenb.) Hellb. = *S. fissa*

STEGOBOLOUS Mont.

aubertianus (Mont.) A. Frisch & Kalb Syns.: *Leptotrema auberianum*, *Ocellularia auberiana* (Frisch & Kalb 2006)
emersus (Kremp.) Frisch & Kalb = *Rhabdodiscus emersus* (Rivas Plata et al. 2012)
granulosus (Tuck.) A. Frisch = *Rhabdodiscus granulosus* (Rivas Plata et al. 2012)

STEINEROPSIS T. Sprib. & Muggia (Spribille et al. 2010)

alaskana T. Sprib. & Muggia (Spribille et al. 2010)

STEINIA Körber

geophana (Nyl.) Stein Syns.: *Lecidea geophana*, *Biatorella geophana*

STENOCYBE (Nyl.) Körber

⁺**clavata** Tibell
⁺**flexuosa** Selva & Tibell (Selva & Tibell 1999)
⁺**fragmenta** E. B. Peterson & Rikkinen (Peterson & Rikkinen 1998)
⁺**major** Nyl. ex Körber
⁺**pullatula** (Ach.) Stein
⁺*byssacea* (Fr.) Körber = *S. pullatula*
⁺*euspora* (Nyl.) Anzi = (?) *S. major*
⁺*minutissima* (G. Merr.) Zahlbr. = *Phaeocalicium minutissimum*
⁺*tremulicola* Norrlin ex Nyl. = *Phaeocalicium tremulicola*

STEREOCAULON Hoffm.

alpinum Laurer ex Funck
apocalypticum Nyl
arcticum Lynge
arenarium (Savicz) I. M. Lamb

botryosum Ach.
capitellatum H. Magn.
condensatum Hoffm.
coniophyllum I. M. Lamb
 [Siphula dactyliza Nyl.] (Kantvilas 2004)
dactylophyllum Flörke
dactylophyllum var. **occidentale** (H. Magn.) I. M. Lamb
depreaultii Delise ex Nyl.
depressum (Frey) I. M. Lamb (Zhurbenko et al 2006)
glareosum (Savicz) H. Magn.
glaucescens Tuck.
glaucescens var. **caespitosulum** (Nyl.) I. M. Lamb
grande (H. Magn.) H. Magn.
groenlandicum (E. Dahl) I. M. Lamb
incrustatum Flörke
intermedium (Savicz) H. Magn.
klondikense T. Sprib. (Spribille et al. 2010)
leucophaeopsis (Nyl.) P. James & Purvis (Fryday 2010)
leprocephalum Vainio
microcarpum Müll. Arg.
myriocarpum Th. Fr.
nanodes Tuck.
nivale (Follmann) Fryday Syn.: Bacidia nivalis (Fryday & Glew 2003)
octomerum Müll. Arg.
paschale (L.) Hoffm.
pileatum Ach.
plicatile (Leighton) Fryday & Coppins (Fryday 2006)
rivulorum H. Magn.
sasakii Zahlbr. var. **simplex** (Riddle) I. M. Lamb
sasakii var. **tomentosoides** I. M. Lamb
saviczii Du Rietz
saxatile H. Magn.
spathuliferum Vainio
sterile (Savicz) I. M. Lamb ex Krog
subcoralloides (Nyl.) Nyl.
subdenudatum Hav. (Spribille et al. 2010)
symphycheilum I. M. Lamb
taeniarum (H. Magn.) Kivistö (Kivistö 1998)
tennesseense H. Magn. ex Degel.
tennesseense H. Magn. ex Degel. var. **nigrofastigiatum** I. M. Lamb
tomentosum Fr.
tornense (H. Magn.) P. James & Purvis (McCune 2017)
vesuvianum Pers.
 albicans Th. Fr. = Lepraria albicans
 arbuscula Nyl. = Lepraria arbuscula
 coralloides Fr. = S. dactylophyllum
 denudatum Flörke = S. vesuvianum
 evolutoides (H. Magn.) Frey = S. saxatile
 microscopicum (Vill.) Frey = Leprocaulon quisquiliare, but N.A. records are L. americanum
 pseudoarbuscula Asahina = Lepraria subalbicans for North American records
 quisquiliare (Leers) Hoffm. = Leprocaulon quisquiliare, but N.A. records are L. americanum
 ramulosum Raeuschel = not in North America north of Mexico
 subalbicans I. M. Lamb = Lepraria subalbicans
 uliginosum I. M. Lamb Known from Greenland but not from the United States or Canada.
 wrightii Tuck. = not in North America

STICTA (Schreber) Ach.**arctica** Degel.**beauvoisii** Delise**canariensis** (Bory) Bory ex Delise**carolinensis** T. McDonald (McDonald et al. 2003)**deyana** Lendemer & Goffinet (Lendemer & Goffinet 2015)**fragilinata** T. McDonald (McDonald et al. 2003)**fuliginosa** (Hoffm.) Ach.**leucoblephara** (Müll. Arg.) D. J. Galloway (Galloway & Thomas 2004)**limbata** (Sm.) Ach.**sylvatica** (Hudson) Ach.**xanthotropa** (Kremp.) D. J. Galloway (Galloway & Thomas 2004)amplissima (Scop.) Rabenh. (Fink 1935) = *Lobaria amplissima*anthraspis Ach. = *Lobaria anthraspis*aurata Ach. = *Crocodia aurata*crocata (L.) Ach. = *Pseudocyphellaria crocata*, but misidentifications for North Americadrummondii Taylor = *Nephroma resupinatum*erosa (Eschw.) Tuck. = *Lobaria ravenelii*glomulifera (Lightf.) Delise = *Lobaria amplissima*hallii Tuck. = *Lobaria hallii*

herbacea (Hudson) Ach. = misidentification for North America

laciniata Ach. = misidentification for North America

linita Ach. = *Lobaria linita*oregana Tuck. = *Lobaria oregano*oroborealis Goward & Tønsberg (Tønsberg & Goward 2001) = *Dendriscosticta oroborealis* (Moncada et al. 2013)pulmonaria (L.) Birolì = *Lobaria pulmonaria*quercizans (Michaux) Ach. (Fink 1935) = *Lobaria quercizans*verrucosa (Hudson) Fink = *Lobaria scrobiculata*

weigeli (Ach.) Vainio = misidentification for North America

wrightii Tuck. = *Dendriscosticta wrightii* (Moncada et al. 2013)**STICTIS** Pers.: Fr.**urceolatum** (Ach.) Gilenstam Syn.: *Conotrema urceolatum* (Wedin et al. 2005)**STIGMATOCHROMA** Marbach**gerontoides** (Stirton) Marbach (Seavey et al. 2017)**STIGMIDIUM** Trevisan***beringicum** Zhurb. & Triebel (Zhurbenko 2010)***californicum** K. Knudsen & Kocourk. (Knudsen & Kocourková 2010f)***cerinae** Cl. Roux & Triebel (Cole & D. Hawksworth 2001)***congestum** (Körber) Triebel (Driscoll et al. 2016) An earlier N.A. report was based on *Sphaerellothecium propinquellum* (Esslinger & Egan 1995)***conspurcans** (Th. Fr.) Triebel & R. Sant. (Spribille et al. 2010)***croceae** (Arnold) Cl. Roux & Triebel (Zhurbenko & Daniëls 2003)***ephebes** (Henssen) D. Hawksw. Syn.: *Pharcidia ephebes* (Henssen) D. Hawksw.***epistigmellum** (Nyl. ex Vouaux) Kocourk. & K. Knudsen (Kocourková & Knudsen 2009c)***epixanthum** Hafellner (Hafellner et al. 2002)***frigidum** (Sacc.) Alstrup & D. Hawksw.***fuscatae** (Arnold) R. Sant.***glebarum** (Arnold) Hafellner (Etayo & Breuss 1998)***gyrophorarum** (Arnold) D. Hawksw. (Hafellner et al. 2002)***hesperium** Kocourk., K. Knudsen, & Diederich (Kocourková & Knudsen 2009b)***lendemerii** Kocourk. & K. Knudsen (Kocourková et al. 2012, Kocourková & Knudsen 2012)***marinum** (Deakin) Swinscow

- ***microcarpum** Alstrup & J. C. David (Zhurbenko 2009b)
- ***mitchelii** Cl. Roux & Bricaud (Zhurbenko 2013)
- ***mycobilimbiae** Cl. Roux, Triebel & Etayo (Diederich 2003)
- *[**Pharcidia parva** Henssen]
- ***peltideae** (Vainio) R. Sant. (Alstrup & Cole 1998)
- ***pseudopeltideae** Cl. Roux & Triebel (Diederich 2003; Zhurbenko & Laursen 2003)
- ***psorae** (Anzi) Hafellner
- ***pumilum** (Lettau) Matzer & Hafellner (Cole & D. Hawksworth 2001)
- ***ramalinae** (Müll. Arg.) Etayo & Diederich (Kocourková et al. 2010)
- ***schaereri** (A. Massal.) Trevisan (Reinstated for N.Am. by Henssen 1995)
- ***solorinarium** (Vainio) D. Hawksw. (Zhurbenko 2009a)
- ***squamariae** (B. de Lesd.) Cl. Roux & Triebel
- ***stygnospilum** (Minks) R. Sant. (McCune et al. 2014b)
- ***tabacinae** (Arnold) Triebel
- ***xanthoparmeliarum** Hafellner (Kocourková & Knudsen 2008)
- ***atryneae** (Arnold) Hafellner = *Sphaerellothecium atryneae*, but North American specimens are *Stigmidium squamariae*
- ***schaereri** (A. Massal.) Trevisan = misidentification for North America

STIRTONIA A. L. Sm.

- [**Arthonia alba** Müll. Arg.]
- alba** Groenh. ex Makhija & Patw. (Seaver et al. 2017)
- byssoidea** F. Seavey & J. Seavey (Seavey & Seavey 2015)
- coei** F. Seavey & J. Seavey (Seavey & Seavey 2015)
- divaricata** F. Seavey & J. Seavey (Seavey et al. 2017)
- dubia** A. L. Smith (Lücking et al. 2011b)
- latispora** F. Seavey & J. Seavey (Seavey & Seavey 2015)
- macrocarpa** Makhija & Patw. (Lücking et al. 2011b)

STRANGOSPORA Körber

- deplanata** (Almq.) Clauz. & Cl. Roux (Knudsen 2007c)
- microhaema** (Norman) R. A. Anderson Syn.: *Biatorella microhaema*
- moriformis** (Ach.) Stein Syn.: *Biatorella moriformis*
- pinicola** (A. Massal.) Körber
- ochrophora** (Nyl.) R. A. Anderson = *Piccolia ochrophora*

STRIGULA Fr.

- americana** R. C. Harris Syn.: *Arthopyrenia tenuis*
- bermudana** (Nyl.) R. C. Harris (Harris 1995a)
- connivens** R. C. Harris (Harris 1995a)
- griseonitens** R. C. Harris (Harris 1995a)
- hypothallina** R. C. Harris (Harris 1995a)
- jamesii** (Swinscow) R. C. Harris Syn.: *Arthopyrenia affinis* auct.
- laceribracae** R. C. Harris (Harris 1995a)
- nitidula** Mont.
- orbicularis** Fr. (Lücking et al. 2011b)
- phaea** (Ach.) R. C. Harris
- schizospora** R. Sant. (Lücking et al. 2011b)
- smaragdula** Fr. : Fr. (Harris 1995a)
- stigmatella** (Ach.) R. C. Harris Syn.: *Arthopyrenia faginea*, *Porina cinerea*, *P. faginea*
- subelegans** Vainio (Harris 1995a)
- submuriformis** (R. C. Harris) R. C. Harris Syn.: *Arthopyrenia submuriformis*
- viridiseda** (Nyl.) R. C. Harris Syn.: *Porina viridiseda*
- wilsonii** (Riddle) R. C. Harris
- affinis* (A. Massal.) R. C. Harris = *S. jamesii* for North American records
- complanata* (Fée) Mont. = *S. orbicularis* (Lücking 2008)

elegans (Fée) Müll. Arg. = *S. smaragdula* (Harris 1995a)
sychnogonioides (Nitschke) R. C. Harris = *Geisleria sychnogonioides*

STROMATELLA Henssen

bermudana (Riddle) Henssen (Schultz 2002e)

SULCARIA Bystrek

badia Brodo & D. Hawksw.

isidiifera Brodo

spiralifera (Brodo & D. Hawksw.) Myllys, Velmala & Goward (Myllys et al. 2014) Syn.: *Bryoria pseudocapillaris*, *B. spiralifera*

SULCOPYRENULA H. Harada

canellae-albae (Fée) H. Harada Syn.: *Anthracothecium canellae-albae* (Harada 1999)

staurospora (Tuck.) H. Harada (Harada 1999)

subglobosa (Riddle) Aptroot (Aptroot 2012)

SYNALISSA Fr.

matogrossensis (Malme) Henssen (Schultz 2002f)

ramulosa (Hoffm.) Fr. Syn.: *Omphalaria symphorea* (McCune et al. 2014b)

melambola Tuck. = *Metamelanea melambola*

symphorea (Ach.) Nyl. = *S. ramulosa* (McCune et al. 2014b)

subnigra (B. de Lesd.) Henssen = *Peccania subnigra*

texana Tuck. = *Peccania texana*

SYNCESIA Taylor (Tehler 1996)

byssina (Vainio) Tehler

depressa (Fée) Tehler

graphica (Fr.) Tehler Syn.: *Chiodecton perplexum*

psaroleuca (Nyl.) Tehler

SYNECHOBLASTUS Trevisan = **COLLEMA**

aggregatus ("Ach.") Th. Fr. = *Gabura fasciculare*

coccophorus (Tuck.) Fink (Fink 1935) = *Enchylium coccophorum*

cyrtaspis (Tuck.) Fink (Fink 1935) = *Enchylium conglomeratum* (var. *crassiusculum*, Degelius 1974)

fascicularis (L.) A. L. Smith (Fink 1935) = *Gabura fasciculare*

laciniatus (Nyl.) Fink (Fink 1935) = *Collema texanum* (Degelius 1974)

leptaleus (Tuck.) Fink (Fink 1935) = *Collema leptaleum*

leucocarpus (Hooker f. & Taylor) Müll. Arg. (Fink 1935) = *Collema leucocarpum* Hooker f. & Taylor, misidentification for North America (Degelius 1974)

microptychius (Tuck.) Fink (Fink 1935) = *Collema leptaleum* (Degelius 1974)

nigrescens (Hudson) Trevisan (Fink 1935) = *Collema nigrescens*

ohioensis Fink (Fink 1935) = *Enchylium conglomeratum* (Degelius 1974)

ryssoleus (Tuck.) Fink (Fink 1935) = *Collema ryssoleum*

polycarpus (Hoffm.) Dalla Torre & Sarnth. = *Enchylium polycarpon*

pyncocarpus Nyl. = *Enchylium conglomeratum* (var. *crassiusculum*, Degelius 1974)

rupestris (Sw.) Trevisan = *Collema flaccidum*

texanus (Tuck.) Müll. Arg. = *Collema texanum*

wyomingensis Fink = *Enchylium polycarpon*

SYZYGOSPORA G. W. Martin (Diederich 1996)

***bachmannii** Diederich & M. S. Christ. (Diederich 1996)

***physciacearum** Diederich (Diederich 1996)

SZCZAWINSKIA A. Funk

leucopoda Holien & Tønsberg (Holien & Tønsberg 2002)
tsugae A. Funk Syn.: *Micarea clavopycnidiata* (Aptroot et al. 1997)

TAENIOLELLA S. Hughes

***beschiana** Diederich (Zhurbenko & Alstrup 2004)
***caespitosa** M. S. Cole & D. Hawksw. (Cole & Hawksworth 2001)
***christiansenii** Alstrup & D. Hawksw. (Zhurbenko & Daniëls 2003)
***delicata** M. S. Christ. & D. Hawksw. (Diederich 2003)
***pertusariicola** D. Hawksw. & H. Mayrhofer (McMullin et al. 2017)
***phaeophysciae** D. Hawksw. (Diederich 2003)
***rolfii** Diederich & Zhurb. (Diederich & Zhurbenko 2001)
***serusiauxii** Diederich (Diederich 2003)
***laevistipitata** M. S. Cole & D. Hawksw. (Cole & Hawksworth 2001) = *Corynespora laevistipitata*

TALPAPELLIS Alstrup & M. S. Cole

***peltigerae** Alstrup & M. S. Cole (Alstrup & Cole 1998)

TAPELLARIA Müll. Arg.

albomarginata Lücking (Lücking et al. 2011b)
epiphylla (Müll. Arg.) R. Sant. Syn.: *Lopadium phyllocharis*
floridensis Common & Lücking (Lücking et al. 2011b)
granulosa Lücking & Rivas Plata (Lücking et al. 2011b)
malmei R. Sant. (Lücking et al. 2011b)
nana (Fée) R. Sant.
bilimboides R. Sant. Report based on *T. albomarginata* (Lücking et al. 2011b)

TELOSCHISTES Norman

chrysophthalmus (L.) Th. Fr.
exilis (Michaux) Vainio
flavicans (Sw.) Norman
arcticus Zahlbr. = *Seiophora aurantiaca*
californicus Sipman = *Seiophora californica*
candelarius (L.) Fink = *Polycauliona candelaria*
concolor (Dickson) Tuck. = *Candelaria concolor*
contortuplicatus (Ach.) Clauzade & Rondon = *Seiophora contortuplicata*
euplocus (Tuck.) Zahlbr. = *Speerschneidera euploca*
lychneus (Ach.) Tuck. = *Polycauliona candelaria*
parietinus (L.) Norman = *Xanthoria parietina*
polycarpus (Hoffm.) Tuck. = *Polycauliona polycarpa*
ramulosus Tuck. = *Xanthoria ramulosa*
villosus auct. non (Ach.) Norman = *T. californicus* for North American records

TEPHROMELA M. Choisy

atra (Hudson) Hafellner Syn.: *Lecanora atra*
***cerasina** (Müll. Arg.) Rambold & Triebel (Nash et al. 2004b)
nashii Kalb (Nash et al. 2004b)
pacifica Björk & Muggia (Cestaro et al. 2016)
aglaea (Sommerf.) Hertel & Rambold = *Calvitimela aglaea*
“**aglaeida**” Nyl. = *Calvitimela aglaea*
armeniaca (DC.) Hertel & Rambold = *Calvitimela armeniaca*
testaceoatra (Vainio) Hertel & Rambold = *Calvitimela testaceoatra*

TETRAMELAS Norman

chloroleucus (Körber) A. Nordin Syn.: *Buellia chloroleuca* (Nordin 2004)
insignis (Nägeli ex Hepp) Kalb Syn.: *Buellia insignis* (Nordin 2004)
papillatus (Sommerf.) Kalb Syn.: *Buellia papillata* (Kalb 2004)

***pulverulentus** (Anzi) A. Nordin & Tibell Syns.: *Buellia pulverulenta*, *Diplotomma pulverulentum* (Nordin & Tibell 2005)
terricolus (A. Nordin) Kalb (Kalb 2004)
triphragmioides (Anzi) A. Nordin & Tibell Syn.: *Buellia triphragmioides* (Nordin & Tibell 2005)
geophilus (Flörke ex Sommerf.) Norman North American records reported to be *T. terricolus* (Nordin 1999, McCune et al. 2014b)

TEUVOA Sohrabi & S. Leavitt (Sohrabi et al. 2013a)
junipericola Sohrabi & S. Leavitt (Sohrabi et al. 2013a)

TEXOSPORIUM Nádv. ex Tibell & Hofsten
sancti-jacobi (Tuck.) Nádv. Syn.: *Cyphelium sancti-jacobi*

THALLOLOMA Trevisan
anguiforme (Vainio) Staiger (Lendemer et al. 2009b)
anguinum (Mont.) Trevisan Syn.: *Graphina anguina* (Staiger 2002, Tripp et al. 2010), *Graphis inustula*
cinnabarinum (Fée) Staiger (Kocourková et al. 2010)
hypoleptum (Nyl.) Staiger (Lendemer & Knudsen 2008b)

THAMNOGALLA D. Hawksw.
*** crombiei** (Mudd) D. Hawksw.
THAMNOLIA Ach. ex Schaerer
subuliformis (Ehrh.) W. L. Culb.
vermicularis (Sw.) Ach. ex Schaerer
subvermicularis Asahina = *T. subuliformis*

THECARIA Fée
quassiicola Fée Syn.: *Phaeographina quassiicola* (Staiger 2002)

THELENELLA Nyl.
brasiliensis (Müll. Arg.) Vainio (Harris 1995a)
calicola C. A. Morse (Morse 2016)
harrisii H. Mayrhofer
hassei (Zahlbr.) H. Mayrhofer Syns.: *Microglaena hassei*, *M. sychnogonoides*
humilis R. C. Harris (Harris 1995a)
inductula (Nyl.) H. Mayrhofer Syns.: *Microglaena inductula*, *Polyblastiopsis inductula*
modesta (Nyl.) Nyl. Syn.: *Microglaena subcorallina*
nubifera C. A. Morse (Morse 2016)
pertusariella (Nyl.) Vainio (Harris 1995a)
rappii R. C. Harris (Harris 1995a)
sastreana R. C. Harris (Harris 1995a)
sordidula (Th. Fr.) H. Mayrhofer Syn.: *Microglaena sordidula*
sychnogonioides (Zahlbr.) R. C. Harris (Harris 1995a)
weberi H. Mayrhofer
americana (Knudsen & Lendemer) Aptroot (Aptroot & Schumm 2012) = *Trimmatothelopsis americana* (Knudsen & Lendemer 2016)
cinerascens (Vainio) R. C. Harris (Harris 1995a) = *Aspidothelium cinerascens* (Nelsen et al. 2017)
fugiens (Müll. Arg.) R. C. Harris (Harris 1995a) = *Aspidothelium fugiens* (Nelsen et al. 2017)
geminipara (Malme) R. C. Harris (Harris 1995a) = *Aspidothelium geminiparum* (Nelsen et al. 2017)
luridella (Nyl.) H. Mayrhofer (Harris 1995a) North American records are *T. nubifera* (Morse 2016)
muscorum (Fr.) Vainio var. *muscorum* (Lendemer & Harris 2004) = *Chromatochlamys muscorum* (Nelsen et al. 2017)
muscorum var. *octospora* (Nyl.) Coppins & Fryday (Fryday & Coppins 2004) = *Chromatochlamys muscorum* var. *octospora* (Nelsen et al. 2017)

THELIDIELLA Fink ex J. Hedrick

blastenicola Fink = a non-lichenized fungus

THELIDIUM A. Massal.

absconditum (Hepp) Rabenh.
aeneovinosum (Anzi) Arnold
areolatum J. W. Thomson
decipiens (Nyl.) Kremp.
fontigenum A. Massal. Syn.: *Thelidium microbolum*, *Verrucaria microbola*
incavatum Nyl. ex Mudd
microsporum Lynge
minimum (A. Massal. ex Körber) Arnold
minutulum Körber
olivaceum (Fr.) Körber
papulare (Fr.) Arnold Syn.: *Verrucaria sprucei*
parvulum Arnold
pyrenophorum (Ach.) Mudd
transsylvanicum Zschacke
velutinum (Bernh.) Körber
zwackhii (Hepp) A. Massal. (Harris & Lendemer 2005)
acrotellum Arnold = *T. minutulum*
circumspersellum (Nyl.) Zschacke North American record is *Porina linearis* (Nash 2002)
mesotropum (Nyl.) A. L. Sm. = *T. minutulum*
microbolum (Tuck.) Hasse = *T. fontigenum* (Orange 2009)
viride (Deak.) Zahlbr. (Fink 1935) = *T. pyrenophorum* (Santesson et al. 2004)

THELIGNYA A. Massal.

lignyota (Wahlenb.) P. M. Jørg. & Henssen Syn.: *Porocyphus dispersus*

THELOCARPON Nyl. ex Hue

epibolum Nyl.
***epibolum** var. **epithallinum** (Leighton ex Nyl.) G. Salisb.
hassei B. de Lesd.
impressellum Nyl. (Dillman et al. 2012)
intermediellum Nyl.
laureri (Flotow) Nyl.
***lichenicola** (Fuckel) Poelt & Hafellner (Hafellner et al. 2002)
sphaerosporum H. Magn. Syn.: *Ahlesia sphaerospora*
superellum Nyl.
albomarginatum Herre = *Acarospora elevata*
epilithellum Nyl. = *T. laureri*
fimicola Fink = *T. intermediellum*
majusculum Nyl. = *T. laureri*
prasinellum Nyl. = *T. laureri*

THELOMMA A. Massal.

brunneum (W. A. Weber) M. Prieto & Wedin Syn.: *Cyphelium brunneum* (Prieto & Wedin 2017)
californicum (Tuck.) Tibell Syn.: *Cyphelium californicum*, *C. farlowii*, *C. andersonii*
mammosum (Hepp) A. Massal. Syn.: *Cypheliopsis bolanderi*
santessonii Tibell
carolinianum (Tuck.) Tibell = *Calicium carolinianum*
occidentale (Herre) Tibell = *Pseudothelomma occidentale*
ocellatum (Körber) Tibell = *Pseudothelomma ocellatum*

THELOPSIS Nyl.

flaveola Arnold
inordinata Nyl.

isiaca Stizenb.
melathelia Nyl.
rubella Nyl.
subporinella Nyl. = T. isiaca

THELOTREMA Ach.

adjectum Nyl.
californicum Tuck. Syn.: Phaeotrema californicum
circumscriptum C. Knight (fide T. Lumbsch, see appendix)
defectum Hale
dilatatum (Müll. Arg.) Hale
eximium R. C. Harris
floridense R. C. Harris
lacteum Kremp.
lathraeum Tuck. Syn.: Ocellularia lathraea
lepadinum (Ach.) Ach.
monospermum R. C. Harris Syn.: Leptotrema lepadodes, L. monosporum auct.
pachysporum Nyl. (Lücking et al. 2011b)
petractoides P. M. Jørg. & Brodo (Purvis et al. 1995)
porinoides Mont. & Bosch Syn.: Ocellularia floridensis
subtile Tuck. Syn.: Ocellularia subtilis
suecicum (H. Magn.) P. James (Esslinger & Egan 1995)
alborosellum (Nyl.) Tuck. = Chapsa alborosella
bahianum Ach. var. obturascens Nyl. = Ocellularia obturascens
carneum Eckfeldt = Mazosia carnea
clandestinum Fée = Myriotrema clandestinum , but a misidentification for N. America
domingense (Fée) Tuck. = Ocellularia domingensis, but a misidentification for N. America
glaucescens Nyl. = Leucodecton glaucescens
granulosum Tuck. = Rhabdodiscus granulatus
halei (Tuck. & Mont.) Zahlbr. = Fibrillithecia halei (Lücking et al. 2016)
heterosporum C. Knight ex F. M. Bailey = Reimnitzia santensis
interpositum (Nyl.) Müll. Arg. = Ocellularia interposita, but a misidentification for North America
leiostomum Tuck. = Redingeria leiostoma (Tuck.) A. Frisch, but a misidentification for North America (Frisch & Kalb 2006)
leprocarpum (Nyl.) Tuck. = Chapsa leprocarpa
monosporum auct. = T. monospermum for North American records
platycarpoides Tuck. (Harris 1995a) = Chapsa platycarpoides
platycarpum Tuck. = Chapsa platycarpoides
postpositum Nyl. = Ocellularia postposita
praestans Müll. Arg. = Ocellularia praestans
ravenelii Tuck. = Sanguinotrema wightii
sanfordianum Zahlbr. = Ocellularia sanfordiana
santense Tuck. = Reimnitzia santensis
texanum Willey ex Nyl. = Trinathotrema stictideum
wightii (Taylor) Nyl. = Sanguinotrema wightii

THERMUTIS Fr.

velutina (Ach.) Flotow

THOLURNA Norman

disimilis (Norman) Norman

THROMBIUM Wallr.

aoristum (Nyl.) Arnold (Breuss 2002f)
discordans (Nyl.) Zahlbr.

epigaeum (Pers.) Wallr.
mongolicum H. Magn. = misidentification for North America (Morse & Ladd 2015)

THYREA A. Massal.

confusa Henssen (Henssen & Jørgensen 1990)
girardii (Durieu & Mont.) Bagl. & Carestia Syn.: *Omphalaria girardii*
demangeonii (Moug. & Mont.) Fink = *Phylliscum demangeonii*
nigritella Lettau = *Lichinella nigritella*
pulvinata auct. North American = *T. confusa*
pulvinata (Schaerer) A. Massal. = *Gonohymenia iodopulchra* (Croz.) Henssen, but not in North America
pyrenoides (Nyl.) Fink = *Paulia pyrenoides*

TICHOTHECIUM Flotow = **VERRUCARIA**

***pygmaeum** Körber = *Muellerella pygmaea*
***zahlbrucknerella** Henssen = *Endococcus zahlbrucknerellae*

TINGIOPSISIDIUM Werner (Hafellner & Spribille 2016)

elaeinum (Wahlenb. ex Ach.) Hafellner & T. Sprib. Syn.: *Vestergrenopsis elaeina*
isidiatum (Degel.) Hafellner & T. Sprib. Syn.: *Pannaria isidiata*, *Vestergrenopsis isidiata*
sonomense (Tuck.) Hafellner & T. Sprib. Syn.: *Koerberia sonomensis*, *Pannaria sonomensis*, *Vestergrenopsis sonomensis*

TOENSBERGIA Bendiksby & Timdal (Bendiksby & Timdal 2013)

leucococca (R. Sant.) Bendiksby & Timdal Syn.: *Pycnora leucococca*

TOMASELLIA A. Massal.

americana (Minks ex Willey) R. C. Harris
[**Mycoporellum difforme** (Minks) Fink]
macularis (Minks ex willey) R. C. Harris (Harris 1995a) Syn.: *Cyrtidula macularis*
californica (Zahlbr.) R. C. Harris = *Mycoporum californicum*
eschweileri (Müll. Arg.) R. C. Harris = *Mycoporum eschweileri*
esenbeckiana (Fée) Müll. Arg. = *Melanotheca esenbeckiana*, but a misidentification for N. America
lactea (Ach.) R. C. Harris = *Mycoporum lactaeum*
sparsella (Nyl.) R. C. Harris = *Mycoporum sparsellum*

TONINIA A. Massal.

alutacea (Anzi) Jatta
arctica Timdal
aromatica (Turner) A. Massal.
athallina (Hepp) Timdal Syn.: *Catillaria athallina*, *Kiliasia athallina*
bullata (Meyen & Flotow) Zahlbr.
candida (Weber) Th. Fr.
cinereovirens (Schaerer) A. Massal.
lutosa (Ach.) Timdal Syn.: (?)*Catillaria crystallifera*
massata (Tuck.) Herre
nashii Timdal (Timdal 2002c)
opuntioides (Vill.) Timdal
pennina (Schaerer) Gyelnik
philippea (Mont.) Timdal Syn.: *Kiliasia philippea*, *Catillaria arctica*, *C. kansuensis*, *C. philippea*
physaroides (Opiz) Zahlbr.
ruginosa (Tuck.) Herre subsp. **ruginosa**
ruginosa subsp. **pacifica** Timdal
sculpturata (H. Magn.) Timdal Syn.: *Catillaria sculpturata*
sedifolia (Scop.) Timdal
squalescens (Nyl.) Th. Fr. (Coppins & Fryday 2006b) But misplaced here?

squalida (Ach.) A. Massal.
subdiffracta Timdal
***subdispersa** (Nyl. ex Hasse) K. Knudsen Syn.: *Lecania subdispersa* (Knudsen & Lendemer 2007)
submexicana B. de Lesd.
subnitida (Hellbom) Hafellner & Türk (Hafellner & Türk 2001) Syns.: *Catillaria tristis*, *C. subnitida*, *Kiliasia tristis*
***subtalparum** van den Boom (van den Boom 2004)
superioris Timdal
taurica (Szatala) Oxner (McCune et al. 2014b)
tristis (Th. Fr.) Th. Fr. subsp. **tristis**
tristis subsp. **arizonica** Timdal
tristis subsp. **asiae-centralis** (H. Magn.) Timdal
tristis subsp. **canadensis** Timdal
tristis subsp. **scholanderi** (Lynge) Timdal Syns.: *Lecidea scholanderi*, *Psora scholanderi*
***verrucarioides** (Nyl.) Timdal
weberi Timdal
caulescens Anzi = *T. squalida*
coeruleonigricans auct. = *T. sedifolia*
coeruleonigricans (Lightf.) Th. Fr. = *Pannaria praetermissa*, nom. rej. prop.
conglomerata (Ach.) Boistel = *Psorinia conglomerata*
cumulata (Sommerf.) Th. Fr. Excluded from *Toninia*; a misidentification for North America
kolax Poelt = *T. verrucarioides*
lobulata (Sommerf.) Lynge = *Bilimbia lobulata*
squarrosa (Ach.) Th. Fr. = *T. squalida*
tabacina auct. = *T. tristis*
talparum Timdal = *T. subdispersa*

TOPELIA P. M. Jørg. & Vězda

aperiens P. M. Jørg. & Vězda
californica P. M. Jørg. & Vězda
gyalectodes (Nyl.) B. D. Ryan & H. T. Lumbsch Syn.: *Lecanora gyalectodes* (Ryan & Lumbsch 2007, Knudsen et al. 2008b)

TOPELIOPSIS Kantvilas & Vězda

toensbergii Vězda & Kantvilas (Kantvilas & Vězda 2000) = *Melanotopelia toensbergii*

TORNABEA Østh.

scutellifera (With.) J. R. Laundon (Nimis & Tretiach 1997) North American report was based on specimens of *Seiophora californica* (Knudsen & Kocourková 2016)

TRAPELIA M. Choisy

coarctata (Turner) M. Choisy Syn.: *Lecidea coarctata*
corticola Coppins & P. James
glebulosa (Sm.) J. R. Laundon Syns.: *Lecidea gregaria*, *L. ornata* (Laundon 2005)
obtegens (Th. Fr.) Hertel Syn.: *Lecidea obtegens*
placodioides Coppins & P. James
stipitata Brodo & Lendemer (Brodo & Lendemer 2015)
brujeriana (D. Dietr.) M. Choisy = *Ainoa mooreana*, but a misidentification for North America
involuta (Taylor) Hertel = *T. glebulosa*
mooreana (Carroll) P. James = *Ainoa mooreana*, but a misidentification for North America (Brodo & Lendemer 2015)
torellii (Anzi) Hertel = *Ainoa mooreana*, but a misidentification for North America

TRAPELIOPSIS Hertel & Gotth. Schneider

aeneofusca (Flotow) Coppins & P. James (Aptroot 1996)
bisorediata McCune & Camacho (McCune et al. 2002)

flexuosa (Fr.) Coppins & P. James Syns.: *Lecidea aeruginosa*, *L. flexuosa*
gelatinosa (Flörke) Coppins & P. James Syns.: *Lecidea gelatinosa*, *Micarea gelatinosa*
glaucopholis (Nyl. ex Hasse) Printzen & McCune Syn.: *Lecidea glaucopholis*, *L. admiscens*, *L. granulosa* var. *phyllizans* (Printzen & McCune 2004)
granulosa (Hoffm.) Lumbsch Syns.: *Lecidea granulosa*, *L. quadricolor*
pseudogranulosa Coppins & P. James
steppica McCune & Camacho (McCune et al. 2002)
viridescens (Schrader) Coppins & P. James Syns.: *Biatora viridescens*, *Lecidea viridescens*, *Micarea viridescens*
californica McCune & Camacho (McCune et al. 2002) = *T. glaucopholis*
wallrothii (Flörke) Hertel & Gotth. Schneider North American reports are *T. californica* (McCune et al. 2002)

TREMATOSPHAERIOPSIS Elenkin

***parmeliana** (Jacz.) Elenkin (Hafellner 2001)

TREMELLA Pers.

***caloplacae** (Zahlbr.) Diederich (Diederich 2007a)
 ***candelariellae** Diederich & Etayo (Harris 2006a)
 ***cetrariicola** Diederich & Coppins (Diederich 1996)
 ***christiansenii** Diederich (Freebury 2014)
 ***cladoniae** Diederich & M. S. Christ. (Diederich 1996)
 ***dendrographae** Diederich & Tehler (Diederich 1996)
 ***diploschistina** Millanes, M. Westb., Wedin & Diederich (Millanes et al. 2012)
 ***dirinariae** Diederich, Millanes & Wedin (Ariyawansa et al. 2015)
 ***everniae** Diederich (Diederich 1996)
 ***graphidis** Diederich, Millanes, Wedin & Common (Ariyawansa et al. 2015)
 ***haematommatis** Diederich (Diederich 1996)
 ***harrisii** Diederich (Diederich 1996)
 ***hypogymniae** Diederich & M. S. Christ. (Diederich 1996)
 ***lethariae** Diederich (Diederich 2003)
 ***lichenicola** Diederich (Diederich 1996)
 ***nashii** Diederich (Diederich 2007a)
 ***nephromatis** Diederich (Diederich 1996)
 ***nieblae** Diederich & van den Boom (Diederich 2007a)
 ***papuana** Diederich (Diederich 2003)
 ***parmeliarum** Diederich (Diederich 1996)
 ***pertusariae** Diederich (Diederich 1996)
 ***phaeographinae** Diederich & Aptroot (Diederich 1996)
 ***phaeophysciae** Diederich & M. S. Christ. (Diederich 2003)
 ***pyrenulae** Diederich, Millanes, Wedin & Common (Ariyawansa et al. 2015)
 ***ramalinae** Diederich (Diederich 2003)
 ***tuckerae** Diederich (Diederich 2007a)
 ***leptogii** Diederich (Diederich 2003) According to Diederich (2004b), in N.A. known only from Mexico.

TREMOLECIA M. Choisy

atrata (Ach.) Hertel Syns.: *Lecidea atrata*, *L. dicksonii* auct.
jurana (Schaerer) Hertel = *Farnoldia jurana*
micropsis (A. Massal.) Hertel = *Farnoldia micropsis*
nivalis (Anzi) Hertel = *Farnoldia micropsis*

TRICHARIA Fée

cretacea Vězda
cuneata L. I. Ferraro & Vězda (Lücking et al. 2007)
duotela W. B. Sanders & Lücking (Sanders & Lücking 2015)

floridensis Lücking & W. R. Buck (Lücking et al. 2007)
santessonii D. Hawksw.
subumbrosa Lücking & W. R. Buck (Lücking et al. 2007)
tuckerae Lücking & W. R. Buck (Lücking et al. 2007)
vainioi R. Sant. (Lücking et al. 2007)
melanothrix Fée = *T. santessonii* and *T. vezdae* for North American records
vezdae W. R. Buck = *Gyalideopsis buckii*

TRICHONECTRIA Kirschst.

***rubefaciens** (Ellis & Everh.) Diederich & Schroers (Sèrusiaux et al. 1999) = *Nectriopsis rubefaciens*

TRICHORAMALINA Rundel & Bowler

crinita (Tuck.) Rundel & Bowler Syn.: *Ramalina crinita*

TRICHOSPHAERELLA E. Bommer, M. Rousseau & Sacc.

***buckii** R. C. Harris & Lendemer (Lendemer et al. 2016c)

TRICHOSPHAERIA Fuckel

***lichenum** P. Karsten & Har. (Zhurbenko 2009b)

TRICHOTHELIUM Müll. Arg. (Harris 2005)

americanum Lendemer (Lendemer 2016b)

epiphyllum Müll. Arg.

aeneum (Wallr.) R. C. Harris = *Pseudosagedia aenea*

angustisporum Cáceres & Lücking (Lücking & Cáceres 2001) North American reports are *T.*

americanum (Lendemer 2016b)

cestrense (E. Michener) R. C. Harris = *Pseudosagedia cestrensis*

chloroticum (Ach.) R. C. Harris = *Pseudosagedia chlorotica*

crocynioides R. C. Harris = *Pseudosagedia crocynioides*

guentheri (Flotow) R. C. Harris = *Pseudosagedia guentheri*

horridulum (Müll. Arg.) R. Sant. North American reports are *T. americanum* (Lendemer 2016b)

isidiatum R. C. Harris = *Pseudosagedia isidiata*

lineare (Leighton) R. C. Harris = *Porina linearis*

nitidulum (Müll. Arg.) R. C. Harris = *Pseudosagedia nitidula*

rhaphidospermum (Müll. Arg.) R. C. Harris = *Pseudosagedia rhaphidosperma*

thaxteri (R. Sant.) R. C. Harris = *Pseudosagedia thaxteri*

TRIMMATOSTROMA Corda

***dendrographae** Diederich, Ertz, U. Braun & Heuchert (Kocourková et al. 2012)

TRIMMATOTHELE Norman ex Zahlbr.

umbellulariae Herre = *Anisomeridium biforme* (Lendemer & Knudsen 2007)

TRIMMATOTHELOPSIS Zschacke (Knudsen & Lendemer 2016)

americana (K. Knudsen & Lendemer) K. Knudsen & Lendemer Syn.: *Melanophloea americana*, *Thelenella americana* (Knudsen & Lendemer 2016)

dispersa (H. Magn.) K. Knudsen & Lendemer Syn.: *Acarospora dispersa* (Knudsen & Lendemer 2016)

terricola (H. Magn.) K. Knudsen & Lendemer Syn.: *Acarospora terricola* (Knudsen & Lendemer 2016)

TRINATHOTREMA Lücking, Rivas Plata & Mangold

stictideum (Nyl.) Lücking, R. Miranda & Kalb (Lücking et al. 2011)

TRYPETHELIUM Sprengel

eluteriae Sprengel

subeluteriae Makhija & Patwardhan (Harris 1995a)

aeneum (Eschw.) Zahlbr. = *Astrothelium aeneum*

annulare (Fée) Mont. = *T. floridanum* for North American records

carolinianum Tuck. = *Bathelium carolinianum*

catervarium (Fée) Tuck. = *Astrothelium variolosum*

cruentum Mont. = *Pyrenula cruenta*

exocanthum Tuck. = *T. virens*

favulosum Ach. (Fink 1935) Questionable for North America (Esslinger & Tucker 2009)

floridanum (Zahlbr. ex M. Choisy) R. C. Harris = *Astrothelium floridanum*

marcidum (Fée) Aptroot (Lücking et al. 2011b) = *Astrothelium marcidum*

mastoideum (Ach.) Ach. = misidentification for North America (Harris 1995a)

nitidiusculum (Nyl.) R. C. Harris = *Astrothelium nitidiusculum*

ochroleucum (Eschw.) Nyl. = *Astrothelium phlyctaena*

pallescens Fée = *Astrothelium phlyctaena*

porosum (Eschw.) Ach. (Fink 1935) = *Astrothelium porosum*

scoria Fée (Mohr 1901) = *Astrothelium scoria*

scorites Tuck. = *T. virens*

tropicum (Ach.) Müll. Arg. = *Nigrovothelium tropicum*

variatum Nyl. (Fink 1935) = *Astrothelium variatum* (Nyl.) Aptroot & Lücking Questionable for North America (Esslinger & Tucker 2009)

variolosum Ach. (Harris 1995a) = *Astrothelium variolosum*

virens Tuck. ex E. Michener = *Viridothelium virens*

TUCKERMANELLA Essl

arizonica Essl. (Esslinger 2003)

coralligera (W. A. Weber) Essl. Syn.: *Cetraria coralligera*, *Tuckermannopsis coralligera* (Esslinger 2003)

fendleri (Nyl.) Essl. Syn.: *Cetraria fendleri*, *Tuckermannopsis fendleri* (Esslinger 2003)

weberi (Essl.) Essl. Syn.: *Cetraria weberi* (Esslinger 2003)

pseudoweberi Essl. Erroneously listed here; reported only from Mexico (Esslinger 2003)

TUCKERMANNOPSIS Gyelnik

americana (Sprengel) Hale Syn.: *Cetraria halei*, *C. ciliaris* var. *halei*

chlorophylla (Willd.) Hale Syn.: *Cetraria chlorophylla*, *C. scutata* auct. non (Wulfen) Poetsch

ciliaris (Ach.) Gyelnik Syn.: *Cetraria ciliaris*

orbata (Nyl.) M. J. Lai Syn.: *Cetraria orbata*

platyphylla (Tuck.) Hale Syn.: *Cetraria platyphylla* Placement uncertain (Thell et al. 2009)

sepincola (Ehrh.) Hale Syn.: *Cetraria sepincola*, *C. scutata* (Wulfen) Poetsch non auct. Placement uncertain (Thell et al. 2009)

subalpina (Imshaug) Kärnefelt Syn.: *Cetraria subalpina*, *C. arborialis* Placement uncertain (Thell et al. 2009)

aurescens (Tuck.) Hale = *Ahtiana aurescens*

"californica" = *Kaernefeltia californica*

canadensis (Räsänen) Hale = *Vulpicida canadensis*

coralligera (W. A. Weber) W. A. Weber = *Tuckermanella coralligera*

fendleri (Nyl.) Hale = *Tuckermanella fendleri*

halei (W. L. Culb. & C. F. Culb.) M. J. Lai = *T. americana*

inermis (Nyl.) Kärnefelt = *Masonhalea inermis*

juniperina (L.) Hale = Old North American records are *Vulpicida canadensis* or *V. viridis*

juniperina (L.) Hale = *Vulpicida juniperina*

merrillii (Du Rietz) Hale = *Kaernefeltia merrillii*

oakesiana (Tuck.) Hale = *Usnocetraria oakesiana*

pallidula (Tuck. ex Riddle) Hale = *Ahtiana pallidula*

pinastri (Scop.) Hale = *Vulpicida pinastri*

viridis (Schwein.) Hale = *Vulpicida viridis*
[*Cetraria weberi* Essl.] = *Tuckermanella weberi*

TURGIDOSCULUM Kohlm. & E. Kohlm.
complicatum (Nyl.) Kohlm. & E. Kohlm. = *Mastodia tessellata*

TYLOPHORON Nyl. ex Stizenb.
hibernicum (D. Hawksw., Coppins & P. James) Ertz, Diederich, Bungartz & Tibell (Lendemer et al. 2013)
moderatum Nyl.
americanum Lendemer, E. Tripp & R. C. Harris (Lendemer et al. 2013) = *Sporodophoron americanum* (Frisch et al. 2015)
protrudens Nyl. North American reports were misidentifications of *T. hibernicum* (Lendemer et al. 2013)

TYLOTHALLIA P. James & H. Kilius
biformigera (Leighton) P. James & H. Kilius Syn.: *Catillaria biformigera*, *C. bahusiensis*

UMBILICARIA Hoffm.
americana Poelt & T. H. Nash
angulata Tuck. Syn.: *Gyrophora angulata*
aprina Nyl.
arctica (Ach.) Nyl. Syn.: *Gyrophora arctica*
cinereorufescens (Schaerer) Frey
crustulosa (Ach.) Frey Syn.: *Omphalodiscus crustulosus*
cylindrica (L.) Delise ex Duby Syn.: *Gyrophora cylindrica*
decussata (Vill.) Zahlbr. Syn.: *Omphalodiscus decussatus*, *Gyrophora decussata*
deusta (L.) Baumg. Syn.: *Gyrophora deusta*, *G. flocculosa*
havaasii Llano
hirsuta (Sw. ex Westr.) Ach.
hyperborea (Ach.) Hoffm. var. **hyperborea** Syn.: *Gyrophora hyperborea*
hyperborea var. **radicicula** (J. E. Zetterst.) Hasselrot
lambii Imshaug
leiocarpa DC. Syn.: *Agyrophora leiocarpa*
lyngei Schol. Syn.: *Agyrophora lyngei*
mammulata (Ach.) Tuck. Syn.: *Gyrophora dillenii*
muhlenbergii (Ach.) Tuck. Syn.: *Actinogyra muhlenbergii*, *Gyrophora muhlenbergii*
nodulospora McCune, Di Meglio & M. J. Curtis (McCune et al. 2014a)
nylanderiana (Zahlbr.) H. Magn.
phaea Tuck. Syn.: *Gyrophora phaea*
polaris (Schol.) Zahlbr. Syn.: *Omphalodiscus krascheninnikovii* auct.
polyphylla (L.) Baumg. Syn.: *Gyrophora polyphylla*
polyrhiza (L.) Fr. Syn.: *Actinogyra polyrhiza*, *Gyrophora polyrhiza*
proboscidea (L.) Schrader Syn.: *Gyrophora proboscidea*
rigida (Du Rietz) Frey Syn.: *U. coriacea*, *Agyrophora rigida*, *Gyrophora anthracina*
scholanderi (Llano) Krog Syn.: *Agyrophora scholanderi*
semitensis Tuck. (Fink 1935; McCune & Curtis 2012)
subglabra (Nyl.) Harm. (Nash et al. 1998)
torrefacta (Lightf.) Schrader Syn.: *Gyrophora erosa*, *G. torrefacta*
vellea (L.) Ach. Syn.: *Gyrophora vellea*
virginis Schaerer Syn.: *Omphalodiscus virginis*, *Gyrophora rugifera*
caroliniana Tuck. = *Lasallia caroliniana*
coriacea Imshaug = *U. rigida*
dillenii Tuck. = *U. mammulata*
grisea Hoffm. = misidentification for North America (Esslinger & Tucker 2009)
intermedia Frey = *U. hyperborea*

krascheninnikovii (Savicz) Zahlbr. North American reports are *U. polaris* (Davydov et al. 2011)
papulosa (Ach.) Nyl. = *Lasallia papulosa*
pensylvanica Hoffm. = *Lasallia pensylvanica*
pustulata (L.) Hoffm. = *Lasallia pustulata*
pustulata var. *papulosa* (Ach.) Tuck. = *Lasallia papulosa*

UNGUICULARIOPSIS Rehm

***fasciculata** Etayo (Etayo & Triebel 2010)
***lettaui** (Grumann) Coppins (Diederich 2003)
***refractiva** (Coppins) Coppins (Zhurbenko 2009a)
***thallophila** (P. Karsten) W. Y. Zhuang (Diederich 2003)
***nephromatis** Zhurb. & Zavarzin (Zhurbenko 2007b) = *Protoungicularia nephromatis*

URCEOLARIA Hooker = ASPICILIA

actinostoma Ach. = *Diploschistes actinostomus*
albissima (Ach.) Fink = *Diploschistes diacapsis*
scruposa (Schreber) Ach. = *Diploschistes scruposus*

USNEA Dill. ex Adanson

aculeata Motyka (apparent nomen nudum, identity uncertain)
affinis Motyka (apparent nomen nudum, identity uncertain)
alpina Motyka
amabilis Motyka
amblyoclada (Müll. Arg.) Zahlbr. (Clerc & Herrera-Campos 1997)
angulata Ach.
australis Fr.
baileyi (Stirton) Zahlbr.
brasiliensis (Zahlbr.) Motyka (Pérez-Vargas et al. 2010)
brattiae P. Clerc (Clerc 2007)
californica Herre
capillaris Motyka
catenulata Motyka (Identification uncertain)
cavernosa Tuck.
ceratina Ach.
chaetophora Stirton (Halonen et al. 1998)
cirrosa Motyka
condensata Motyka
cornuta Körber subsp. **cornuta**
cristatula Motyka (Knudsen & Lendemer 2006)
cylindrica P. Clerc (Dillman et al. 2012)
dasaia Stirton (Clerc & Herrera-Campos 1997)
dasopoga (Ach.) Nyl. (Arcadia 2013)
deformis Motyka
diffracta Vainio (Lendemer et al. 2008c)
dimorpha (Müll. Arg.) Motyka
diplotypus Vainio (Halonen et al. 1998)
endochrysea Stirton
entoviolata Motyka (Clerc 2004, Lendemer & Tripp 2008)
erinacea Vainio (Tavares & Sanders 1998; Clerc 2011)
esperantiana Clerc (Halonen et al. 1998)
evansii Motyka
fibrillosa Motyka
flammea Stirton (Clerc & May 2007)
flavocardia Räsänen (Clerc 2004)
florida (L.) Weber ex F. H. Wigg. (questionable for North America, Tavares & Sanders 1998)
fragilescens Hav. ex Lynge

fragilescens var. **mollis** (Vainio) Clerc
freyi Motyka
fulvoreagens (Räsänen) Räsänen
furfurosula (Zahlbr.) Motyka
glabrata (Ach.) Vainio
glabrescens (Nyl. ex Vainio) Vainio
graciosa Motyka (Identification uncertain)
halei P. Clerc (Clerc & Herrera-Campos 1997)
hirta (L.) Weber ex F. H. Wigg.
intermedia (A. Massal.) Jatta (Clerc 2007)
lambii (Imshaug) Wirtz & Lumbsch Syn.: *Neuropogon lambii* (Wirtz et al. 2008; Lumbsch & Wirtz 2011) **leucosticta** Vainio
longissima Ach.
macaronesica P. Clerc (Clerc 2011)
meridionalis Zahlbr. Syn.: *U. michauxii* (Gerlach et al. 2017)
merrillii Motyka
mexicana Vainio (Truong et al. 2013)
mirabilis Motyka
monstruosa Vainio
mutabilis Stirton
myrmaiacaina P. Clerc (Clerc 2007)
nidulans Motyka (Halonen et al. 1998)
occidentalis Motyka
pacificana P. Halonen (Halonen 2000)
parafloridana K. Mark, Will-Wolf & Randle (Mark et al. 2016)
parvula Motyka (Clerc 2007)
perhispidella J. Steiner (Clerc 2016)
perplexans Stirton (Clerc 2016)
poliotrix Kremp. (Clerc 2016)
praetervisa (Asahina) P. Clerc (Clerc 2004)
quasirigida Lendemer & Tavares (Lendemer & Tavares 2003)
ramillosa Motyka
roseola Vainio
rubicunda Stirton
scabrata Nyl.
scholanderi Llano
silesiaca Motyka (Tavares 1997; Gams 2004)
silvatica Motyka
sphacelata R. Br. Syn.: *Neuropogon sphacelatus*, *N. sulphureus*
strigosa (Ach.) Eaton subsp. **major** (Michaux) I. Tav.
strigosa subsp. **rubiginea** (Michaux) I. Tav. Syn.: *U. rubiginea*
strigosa subsp. **strigosa**
subcornuta Stirton (Brodo et al. 2001)
subdasaea Truong & P. Clerc (Clerc 2016)
subfloridana Stirton
subfusca Stirton
subgracilis Vainio (Tavares 1997; Clerc 2004; Truong et al. 2013)
subrubicunda P. Clerc (Clerc 2011)
subscabrosa Nyl. ex Motyka
transitoria Motyka (Truong et al. 2013)
trichodea Ach.
tristis Motyka
vainioi Motyka
variegata Stirton
wasmuthii Räsänen
xanthopoga Nyl.

ammannii P. Clerc & Herrera-Campos In North America, only known in Mexico (Clerc & Herrera-Campos 1997)
 antillarum (Vainio) Zahlbr. = *U. baileyi*
 arizonica Motyka = *U. intermedia* (Clerc 2007)
 articulata (L.) Hoffm. = misidentification for North America
 barbata (L.) F. H. Wigg. = misidentification for North America?
 barbata var. xanthopoga Müll. Arg. = *U. xanthopoga*
 betulina Motyka = (?) *U. glabrescens*
 cornuta subsp. brasiliensis (Zahlbr.) P. Clerc (Clerc 2007) = *U. brasiliensis*
 caucasica Vainio = (?) *U. dasopoga*
 ciliifera Motyka (apparent nomen nudum) = *U. cirrosa* (fide J. Lendemer)
 comosa auct. = *U. subfloridana*
 compacta (Räsänen) Motyka = *U. glabrescens*
 confusa Asahina = *U. cornuta*
 diplotypus Vainio = saxicolous specimens were misidentification for North America (Clerc & Herrera-Campos 1997)
 distincta Motyka = *U. glabrescens*
 duriuscula Motyka = *U. mexicana* (Truong et al. 2013) However, the two names represent different chemotypes
 esthonica Räsänen = *U. dasopoga*
 filipendula Stirton = *U. dasopoga* (Arcadia 2013)
 finkii Zahlbr. = *U. transitoria* (Truong et al. 2013)
 flagellata Motyka = *U. dasopoga*
 globularis Motyka = *U. amblyoclada*
 herrei Hale = nom. nud.
 hesperina Motyka = *U. subgracilis*
 implicita (Stirton) Zahlbr. = *U. baileyi*
 inflata Delise ex Duby nom. nudum = *U. cornuta*
 kujalae Räsänen = *U. glabrata*
 lapponica Vainio = *U. perplexans* (Clerc 2016)
 laricina Vainio ex Räsänen = (?) *U. lapponica*
 madeirensis Motyka = *U. silesiaca*
 michauxii I. Tav. = *U. meridionalis* (Gerlach et al. 2017)
 mollis Stirton = *U. fragilescens* var. *mollis*
 montana Motyka = misidentification for North America
 nashii P. Clerc & Herrera-Campos In North America, only known in Mexico (Clerc & Herrera-Campos 1997)
 pachyclada Motyka = *U. ceratina* (Clerc 2007)
 pensylvanica Motyka = *U. rubicunda* (Clerc 2007)
 perplectata Motyka = *U. baileyi* (Clerc 2007)
 perplexans Stirton (Clerc 1987) = an Asian taxon, not present in North America
 plicata (L.) Weber ex F. H. Wigg. = misidentification for North America
 prostrata Vainio ex Räsänen = *U. barbata*, misidentification for North America?
 retifera Motyka = *U. intermedia* (Clerc 2007)
 rigida (Ach.) Motyka (Halonen et al. 1998) = *U. quasirigida*
 rubiginea (Michaux) A. Massal. = *U. strigosa* subsp. *rubiginea*
 rugulosa Vainio = *U. scabrata*
 scabiosa Motyka = *U. scabrata* (Clerc 2007)
 scabrata subsp. nylanderiana Motyka = chemotype of *U. scabrata*
 schadenbergiana Göpp. & Stein (Clerc 2007) N.A. reports are *U. subgracilis* (Truong et al. 2013)
 shimadai Asahina In North America, only known in Mexico (Clerc 2004)
 similis Motyka ex Räsänen = *U. subfloridana*
 sorediifera (Arnold) Lynge = *U. glabrata*
 sorediifera sensu Motyka = *U. substerilis* (Clerc 2007)
 spinulifera (Vainio) Motyka = *U. dasaea* (Clerc 2007)
 stuppea (Räsänen) Motyka = *U. substerilis* (Clerc 2007)

subcavata Motyka = U. perplectata
subhirta (Vainio) Motyka = U. cornuta subsp. cornuta (Clerc 2007)
sublaxa Vainio = U. dasopoga
substerilis Motyka = U. lapponica (Mark et al. 2016)
variolosa Motyka = U. hirta (Clerc 1997)
wirthii Clerc = U. flavocardia

USNOCETRARIA M. J. Lai & C. J. Wei

oakesiana (Tuck.) M. J. Lai & C. J. Wei Syns.: Allocetraria oakesiana, Cetraria oakesiana, Tuckermannopsis oakesiana (Thell et al. 2009)

VAHLIELLA P. M. Jørg. (Jørgensen 2008)

californica (Tuck.) P. M. Jørg. (Jørgensen 2008) Syns. Fuscopannaria californica, Pannaria microphylla var. californica
globigera (Fryday & P. M. Jørg.) P. M. Jørg. (Jørgensen 2008) Syn.: Fuscopannaria globigera
hookerioides (P. M. Jørg.) P. M. Jørg. (Jørgensen 2008) Syn.: Fuscopannaria hookerioides
labrata (P. M. Jørg.) P. M. Jørg. (Jørgensen 2008) Syn.: Fuscopannaria labrata
leucophaea (Vahl) P. M. Jørg. (Jørgensen 2008) Syns.: Fuscopannaria leucophaea, Pannaria leucophaea, Parmeliella microphylla
saubinetii (Mont.) P. M. Jørg. (Jørgensen 2008) Syns.: Fuscopannaria saubinetii, Parmeliella saubinetii

VAINIONORA Kalb

americana Kalb, Tønsberg & Elix (Kalb 2004b)

VARICELLARIA Nyl.

lactea (L.) Schmitt & Lumbsch (McMullin et al. 2017)
rhodocarpa (Körber) Th. Fr.
velata (Turner) Schmitt & Lumbsch (Schmitt et al. 2012) Syn.: Pertusaria velata
kemensis Räsänen = V. rhodocarpa

VARIOLARIA Ach. (Lendemer et al. 2013, Lendemer & Harris 2017)

amara Ach. = Lepra amara
multipunctoides (Dibben) Lendemer, Hodkinson & R. C. Harris = Lepra multipunctoides
ophthalmiza (Nyl.) Darb. = Lepra ophthalmiza
pustulata (Brodo & W. L. Culb.) Lendemer, Hodkinson & R. C. Harris = Lepra pustulata
trachythallina (Erichsen) Lendemer, Hodkinson & R. C. Harris = Lepra trachythallina
waghornei (Hulting) Darb. = Lepra waghornei

VARIOSPORA Arup, Søchting & Frödén (Arup et al. 2013)

aurantia (Pers.) Arup, Søchting & Frödén Syns.: Caloplaca aurantia, C. calloplisma
velana (A. Massal.) Arup, Søchting & Frödén Syn.: Caloplaca velana

VERMILACINIA Spjut & Hale (Spjut 1996) = NIEBLA (Bowler & Marsh 2004)

acicularis Spjut (Spjut 1996) = Niebla ceruchoides
cephalota (Tuck.) Spjut & Hale (Spjut 1996) = Niebla cephalota
cerebra Spjut (Spjut 1996) = Niebla ceruchis
ceruchoides (Rundel & Bowler) Spjut (Spjut 1996) = Niebla ceruchoides
combeoides (Nyl.) Spjut & Hale (Spjut 1996) = Niebla combeoides
corrugata Spjut (Spjut 1996) = Niebla ceruchis
howei Spjut (Spjut 1996) = Niebla ceruchis
laevigata (Rundel & Bowler) Spjut (Spjut 1996) = Niebla laevigata
leopardina Spjut (Spjut 1996) = Niebla ceruchis
nylanderii Spjut (Spjut 1996) = Niebla ceruchis
paleoderma Spjut (Spjut 1996) = Niebla laevigata
polymorpha (Bowler, Marsh, T. H. Nash & Riefner) Spjut (Spjut 1996) = Niebla polymorpha

procera (Bowler & Rundel) Spjut (Spjut 1996) = *Niebla procera*
pumila Spjut (Spjut 1996) = *Niebla ceruchoides*
reptiloderma Spjut (Spjut 1996) = *Niebla cedrosensis*
robusta (Howe) Spjut & Hale (Spjut 1996) = *Niebla robusta*
tigrina (Follmann) Spjut & Hale (Spjut 1996) = misidentification for North America
tuberculata (Riefner, Bowler, J. E. Marsh & T. H. Nash) Spjut (Spjut 1996) = *Niebla tuberculata*
zebrina Spjut (Spjut 1996) = *Niebla ceruchis*

VERRUCARIA Schrader

acrotella Ach.
adelminienii Zschacke (Breuss 2007b)
aethiobola Wahlenb.
alutacea Wallr. (Breuss 2007b)
americana (B. de Lesd.) Breuss Syn.: *Endopyrenium americanum* (Breuss 2007b)
amylacea Hepp
applanata Hepp
arctica Lynge
aspecta Breuss (Breuss 2007b)
asperula Servít (Breuss 2007b)
beltraminiana (A. Massal.) Trevisan (Breuss 2007b)
bernaicensis Malbr. (Breuss 2007b)
#bernardinensis Breuss (Breuss 2007b)
boccana Servít (Knudsen & Kocourková 2012b)
breussii Diederich & van den Boom (McCune et al. 2014b)
bryoctona (Th. Fr.) A. Orange (Breuss 2002b)
caerulea DC.
calkinsiana Servít
carbonusta Breuss (Hutten et al. 2013)
cataleptoides (Nyl.) Nyl.
#cetera Breuss (Breuss 1998)
ceuthocarpa Wahlenb.
confluens A. Massal. (Breuss 2007b, McCune et al. 2014b)
dacryodes Nyl.
degelii R. Sant.
denudata Zschacke (McMullin et al. 2017)
divergens Nyl.
devergescens Nyl.
deversa Vainio
ditmarsica Erichsen
dolomitica (A. Massal.) Kremp. (McCune et al. 2014b)
dolosa Hepp
elaeina Borrer (Breuss 2007b, Knudsen 2007c)
elaeomelaena (A. Massal.) Arnold
endocarpoides Servít (Breuss 2007b)
epimaura Brodo (Brodo & Santesson 1997)
erichsenii Zschacke
falcata Breuss (Breuss 2007b)
fayettensis Servít
finkiana Servít
fischeri Müll. Arg. (McCune et al. 2014b)
floerkeana Dalla Torre & Sarnth (Breuss 2007b)
fraudulosa Nyl. (Breuss 2007b)
funckii (Sprengel) Zahlbr.
furfuracea (B. de Lesd.) Breuss (Breuss 2007b, Knudsen 2007c)
fusca Pers. (Tucker et al. 2006)
fuscoatroides Servít (Knudsen & La Doux 2006)

fusconigrescens Nyl.
glaucovirens Grumann
halizoa Leighton
hochstetteri Fr. (McCune et al. 2014b)
hydrela Ach.
illinoisensis Servít
incrassata Breuss (Breuss 2007b)
inficiens Breuss Syns.: Catapyrenium plumbeum, Dermatocarpon plumbeum, Endopyrenium plumbeum (Breuss 1998)
inornata Servít (Breuss 2007b)
integra (Nyl.) Nyl.
internigrescens (Nyl.) Erichsen
iovensis Servít
kondaensis Vainio (McCune et al. 2014b)
kootenaica Breuss & T. Sprib. (Breuss & Spribille 2001)
latebrosa Körber (Spribille et al. 2010)
lobata J. W. Thomson
macrostoma Dufour ex DC.
maculicarpa Breuss (Breuss 2007b)
margacea (Wahlenb.) Wahlenb.
memnonia (Flotow) Arnold (Tucker et al. 2006, Breuss 2007b)
mimicrans Servít (Breuss 2007b, Knudsen 2007c)
muralis Ach.
murorum (Arnold) Lindau (Breuss 2007b)
nigrescens Pers.
nigrescentoidea Fink
nigrofusca Servít (Breuss 2007b)
novomexicana B. de Lesd.
obductilis (Nyl.) Zschacke (Nash et al. 1998)
obnigrescens Nyl.
obsoleta Lynge
onegensis Vainio (Breuss 2007b)
ossiseda Lynge
othmarii K. Knudsen & L. Arcadia (Knudsen & Kocourková 2012a)
phaeothelena Th. Fr.
phloeophila Breuss (Breuss 2002b)
pinguicula A. Massal.
poeltii (Servít) Breuss (McCune et al. 2014b)
praetermissa (Trevisan) Anzi
prominula Nyl.
prosoplectenchymatica Servít (Breuss 2007b)
pseudonigrescens Servít
putnae Servít (McCune et al. 2014b)
quercina Breuss (Breuss 2007b)
riddleana R. C. Harris (Harris 1995a)
runderella Nyl.
rufofuscella Servít (Breuss 2007b, Knudsen 2007c)
rupestris Schrader
sandstedei B. de Lesd.
schindleri Servít (Breuss 2007b)
schofieldii Brodo (Brodo & Santesson 1997)
silicicola Fink
sorbicola Servít
sordida Fink
sphaerospora Anzi (Goward et al. 1996)
sphinctrina Ach.

subdivisa Breuss (Breuss 2007b)
subglaucina B. de Lesd.
submersella Servít
submuralis Nyl.
subvirens Servít (McCune et al. 2014b)
tectorum (A. Massal.) Körber
thujae Lendemer & Breuss (Lendemer & Breuss 2009)
trabicola Arnold ex Servít (Nash et al. 1998, Breuss 2007b)
turgida Servít (Breuss 2007b, Knudsen 2007c)
umbrinula Nyl.
viridigrana Breuss (Breuss 2002b)
viridula (Schrader) Ach.
xyloxena Norman (Breuss 2002b)
amphibia Clemente = *Hydropunctaria amphibia* (Orange 2012)
aquilella Nyl. = *V. aethiobola*
bacillosa Nyl. = *Sarcopyrenia bacillosa*
baldensis A. Massal. (Halda 2003) = *Bagliettoa baldensis* (Breuss 2007b)
calciseda DC. = *Bagliettoa calciseda*
canella Nyl. = *Placopyrenium canellum*
cestrensis Tuck. ex E. Michener = *Pseudosagedia cestrensis*
circumspersella Nyl. = *Thelidium circumspersellum*, but apparent misidentification for North America (Nash 2002)
#compacta (A. Massal.) Jatta (Knudsen & La Doux 2005) = *Heteroplacidium compactum*
diffractella Nyl. = *Willeya diffractella*
disjuncta Arnold = *Parabagliettoa disjuncta*
exalbida Nyl. = *Polyblastia exalbida*
fulva Cumm. Identity uncertain, illegitimate homonym of *V. fulva* Hoffm. (Dillman et al. 2012)
fuscella (Turner) Winch = *Placopyrenium fuscillum*
fuscella var. *glaucina* (Ach.) Schaerer = *V. caerulea*
glaucina Ach. = *V. caerulea*
hymnothora Ach. = *Granulopyrenis hymnothora*
iowensis Servít = *V. fayettensis*
intercedens Nyl. = *Polyblastia cupularis*
kernstockii Zschacke = *Hydropunctaria rheitrophila*
laevata Ach. = *V. aethiobola*
lecideoides (A. Massal.) Trevisan = *Placopyrenium lecideoides*
marmorea (Scop.) Arnold = *Bagliettoa marmorea* (Yuzon et al. 2014)
maura Wahlenb. = *Hydropunctaria maura*
melas Herre = *Wahlenbergiella striatula* (Knudsen 2012)
microbola Tuck. = *Thelidium fontigenum*
microspora auct. = *V. halizoa*
microspora Nyl. = *V. striatula*
minor Breuss (Breuss 2007b) = *Verruculopsis minutum* (Krzewicka 2012)
mucosa Wahlenb. = *Wahlenbergiella mucosa*
mutabilis Borrer ex Leighton = nom. illegit.
obtenta Nyl. = *Sporodictyon terrestre* (Dillman et al. 2012)
papillosa Ach. (Breuss 2007b, Knudsen et al. 2008b) = *V. viridula* (Orange 2004)
papillosa Flörke non Ach. = *V. floerkeana* (Breuss 2007b)
pernigrata Nyl. = *Protothelenella sphinctrinoides* (Dillman et al. 2012)
perpusilla Russell (Fink 1935) = *Thelidium perpusillum* (A. W. Russell) Zahlbr. Uncertain for North America
rheitrophila Zschacke = *Hydropunctaria rheitrophila*
rubrocincta Breuss (Breuss 2000) = *Bagliettoa rubrocincta* (Yuzon et al. 2014)
rupicola (B. de Lesd.) Breuss non (L.) Humb. = *V. othmarii* (Knudsen & Kocourková 2012a)
sprucei (Lönnr.) Bab (Fink 1935) = *Thelidium papulare* (Nimis & Martellos 2003)
stanfordii Herre = *Placopyrenium stanfordii*

striatula Wahlenb. = Wahlenbergiella striatula
submersa Schaerer = V. submersella
subsuperficialis Fink = V. striatula
tavaresiae R. Moe (Moe 1997) = Wahlenbergiella tavaresiae
terebrata (Mudd) Leighton (Fink 1935) = Staurothele rupifraga (Smith 1926)
virens Nyl. = V. glaucovirens
zamenhofiana Clauzade & Cl. Roux = Heteropladidium zamenhofianum (Kocourková et al. 2012)

VERRUCULOPSIS Gueidan, Nav.-Ros. & Cl. Roux
minutum (Hepp) Krzewicka Syn.: Verrucaria minor (Krzewicka 2012)

VESTERGRENOPSIS Gyelnik = **TINGIOPSIDIUM** (Hafellner & Spribille 2016)
elaeina (Wahlenb.) Gyelnik = Tingiopsidium elaeinum
isidiata (Degel.) E. Dahl = Tingiopsidium isidiatum
sonomensis (Tuck.) T. Sprib. & Muggia (Spribille & Muggia 2012) = Tingiopsidium sonomense

VEZDAEA Tschermak-Woess & Poelt
acicularis Coppins (Brodo 2001; Lendemer & Yahr 2004)
leprosa (P. James) Vězda (Buck et al. 1999)
retigera Poelt & Döbbeler (Lendemer & Yahr 2004)
rheocarpa Poelt & Döbbeler (Westberg 2004b)
schuyleriana Lendemer (Lendemer 2011c)
stipitata Poelt & Döbbeler

VIGNERONIA Ertz (Ertz et al. 2015b)
cypressi (R. C. Harris) Ertz & Tehler

VIOLELLA T. Sprib. (Spribille et al. 2011a)
fucata (Stirton) T. Sprib. Syn.: Mycoblastus fucatus

VIRIDOTHELIUM Lücking, M. P. Nelsen & Aptroot
virens (Tuck. ex Michener) Lücking, M. P. Nelsen & Aptroot Syn.: Trypethelium virens (Aptroot et al. 2016)

VOUAUXIELLA Petrak & Sydow
***lichenicola** (Lindsay) Petrak & Sydow (Esslinger & Egan 1995)
***verrucosa** (Vouaux) Petrak & Sydow (Diederich 2003)

VOUAUXIOMYCES Dyko & D. Hawksw.
***truncatus** (B. de Lesd.) Dyko & D. Hawksw. (= anamorph of Abrothallus microspermus)

VULPICIDA J.-E. Mattsson & M. J. Lai
canadensis (Räsänen) J.-E. Mattsson & M. J. Lai Syns.: Cetraria canadensis, Tuckermannopsis canadensis
juniperina (L.) J.-E. Mattsson & M. J. Lai (Saag et al. 2014)
pinastri (Scop.) J.-E. Mattsson & M. J. Lai Syns.: Cetraria pinastri, Tuckermannopsis pinastri
viridis (Schwein.) J.-E. Mattsson & M. J. Lai Syn.: Cetraria viridis, Tuckermannopsis viridis
tilesii (Ach.) J.-E. Mattsson & M. J. Lai = Vulpicida juniperina (Saag et al. 2014)

WAHLENBERGIELLA Gueidan & Thüs (Gueidan et al. 2009)
mucosa (Wahlenb.) Gueidan & Thüs Syn.: Verrucaria mucosa
striatula (Wahlenb.) Gueidan & Thüs Syns.: Verrucaria melas, V. striatula
tavaresiae (R. L. Moe) Gueidan, Thüs, & Pérez-Ortega Syn.: Verrucaria tavaresiae (Gueidan et al. 2011)

WAYNEA Moberg

californica Moberg Erroneously listed here as a synonym of *W. stoechadiana*
stoechadiana (Abbassi Maaf & Cl. Roux) Cl. Roux & Clerc = Not in North America

WEDDELLOMYCES D. Hawksw.

***xanthoparmeliae** Calat. & Nav.-Ros. (Kocourková & Knudsen 2008)

WENTIOMYCES Koord.

***peltigericola** D. Hawksw. (Alstrup & Cole 1998) = *Raciborskiomyces peltigericola*

WETMOREANA Arup, Søchting & Frödén (Arup et al. 2013)

texana (Wetmore & Kärnefelt) Arup, Frödén & Søchting Syn.: *Caloplaca texana*

WILLEYA Müll. Arg. (Gueidan & Lendemer 2015)

diffractella (Nyl.) Müll. Arg. Syn.: *Endocarpon tenuissimum*, *E. diffractellum*, *Staurothele diffractella*, *Verrucaria diffractella*

XANTHOCARPIA A. Massal. & De Not. (Arup et al. 2013)

crenulatella (Nyl.) Frödén, Arup & Søchting Syn.: *Caloplaca crenulatella*

erichansenii (S. Y. Kondr., A. Thell, Kärnefelt & Elix) Frödén, Arup & Søchting. Syn.: *Caloplaca erichansenii*

feracissima (H. Magn.) Frödén, Arup & Søchting Syn.: *Caloplaca feracissima*

lactea (A. Massal.) A. Massal. Syn.: *Caloplaca lactea*

marmorata (Bagl.) Frödén, Arup & Søchting Syn.: *Caloplaca marmorata*

tominii (Savicz) Frödén, Arup & Søchting Syn.: *Caloplaca tominii*

XANTHOMENDOZA S. Y. Kondr. & Kärnefelt

borealis (R. Sant. & Poelt) Søchting, Kärnefelt & S. Y. Kondr. Syn.: *Xanthoria borealis* (Søchting et al. 2002)

concinna (J. W. Thomson & T. H. Nash) Søchting, Kärnefelt & S. Y. Kondr. Syn.: *Xanthoria concinna* (Søchting et al. 2002)

fallax (Hepp ex Arnold) Søchting, Kärnefelt & S. Y. Kondr. Syn.: *Xanthoria fallax* (Søchting et al. 2002)

fulva (Hoffm.) Søchting, Kärnefelt & S. Y. Kondr. Syn.: *Xanthoria fulva* (Søchting et al. 2002)

galericulata L. Lindblom (Lindblom 2006)

hasseana (Räsänen) Søchting, Kärnefelt & S. Y. Kondr. Syn.: *Xanthoria hasseana* (Søchting et al. 2002)

mendozae (Räsänen) S. Y. Kondr. & Kärnefelt Syn.: *Xanthoria mendozae* (Lindblom 2004a)

montana (L. Lindblom) Søchting, Kärnefelt & S. Y. Kondr. Syn.: *Xanthoria montana* (Søchting et al. 2002)

oregana (Gyelnik) Søchting, Kärnefelt & S. Y. Kondr. Syn.: *Xanthoria oregana* (Søchting et al. 2002)

subramulosa (Räsänen) Søchting, Kärnefelt & S. Y. Kondr. Syn.: *Xanthoria subramulosa* (Søchting et al. 2002) According to Lindblom (1997), this is a synonym of *X. fulva*

trachyphylla (Tuck.) Frödén, Arup & Søchting Syn.: *Caloplaca trachyphylla*, *Placodium elegans* var. *trachyphyllum*

ulophyllodes (Räsänen) Søchting, Kärnefelt & S. Y. Kondr. Syn.: *Xanthoria ulophyllodes* (Søchting et al. 2002)

weberi (S. Y. Kondr. & Kärnefelt) L. Lindblom (Lindblom 2006) Syn.: *Oxneria weberi*, *Xanthoria wetmorei*

alfredii (S. Y. Kondr. & Poelt) Søchting, Kärnefelt & S. Y. Kondr. = North American report is *X. montana*

rosemarieae S. Y. Kondr. & Kärnefelt (Lumbsch et al. 2011) = *X. weberi* (Knudsen et al. 2011b)

XANTHOPARMELIA (Vainio) Hale

ahtii (Essl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch (Blanco et al. 2004b) Syn.: *Neofuscelia ahtii*, *Parmelia ahtii*

ajoensis (T. H. Nash) Egan Syn.: *Parmelia ajoensis*

amableana (Gyelnik) Hale (Nash & Elix 2004)
angustiphylla (Gyelnik) Hale
arida Egan & Derstine
atticoides (Essl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch (Blanco et al. 2004b) Syns.:
 Neofuscelia atticoides, Parmelia atticoides
australasica D. J. Galloway
barbatica (Elix) Egan
brunella (Essl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch (Blanco et al. 2004b) Syns.:
 Neofuscelia brunella, Parmelia brunella
californica Hale
camtschadalis (Ach.) Hale
chiricahuensis (R. A. Anderson & W. A. Weber) O. Blanco, A. Crespo, Elix, D. Hawksw. &
 Lumbsch (Blanco et al. 2004b) Syns.: Neofuscelia chiricahuensis, Parmelia chiricahuensis
chlorochroa (Tuck.) Hale Syn.: Parmelia chlorochroa
coloradoënsis (Gyelnik) Hale
commonii Elix & T. H. Nash (Elix & Nash 1999)
consociata (Elix) Elix & Johnston (Nash et al. 1998)
conspersa (Ehrh. ex Ach.) Hale Syns.: Parmelia conspersa, P. isidiata
cumberlandia (Gyelnik) Hale Syn.: Parmelia cumberlandia
dierythra (Hale) Hale Syn.: Parmelia dierythra
digitiformis (Elix & P. M. Armstr.) Filson (Nash & Elix 2004)
dissensa (T. H. Nash) Hale Syn.: Parmelia dissensa
eganii Elix & T. H. Nash (Elix & Nash 1999)
huachucensis (T. H. Nash) Egan Syn.: Parmelia huachucensis
hypofusca (Gyelnik) Hodgkinson & Lendemer (Hodgkinson & Lendemer 2011)
hypomelaena (Hale) Hale Syn.: Parmelia hypomelaena
idahoensis Hale
incerta (Kurok. & Filson) Elix & J. Johnst. (Nash & Elix 2004)
infrapallida (Essl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch (Blanco et al. 2004) Syns.:
 Neofuscelia infrapallida, Parmelia infrapallida
isidiascens Hale
isidiigera (Müll. Arg.) Elix & J. Johnst. (Nash & Elix 2004)
isidiosa (Müll. Arg.) Elix & Johnston (Nash et al. 1998)
joranadia (T. H. Nash) Hale Syn.: Parmelia joranadia
knudsenii Elix, A. Thell & Söchting (Thell et al. 2009)
lavicola (Gyelnik) Hale Syn.: Parmelia kurokawae
lineola (E. C. Berry) Hale Syn.: Parmelia lineola
lipochlorochroa Hale & Elix
lobulatella T. H. Nash & Elix (Nash & Elix 2004)
loxodes (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch (Blanco et al. 2004b) Syns.:
 Neofuscelia loxodes, Parmelia isidiotyla, P. loxodes
maricopensis T. H. Nash & Elix
mexicana (Gyelnik) Hale Syn.: Parmelia mexicana
moctezumensis T. H. Nash
montanensis Hale
monticola (J. P. Dey) Hale Syn.: Parmelia monticola
mougeotii (Schaerer) Hale Syn.: Parmelia mougeotii
neochlorochroa Hale
neocongensis (Hale) Hale (Nash et al. 1998)
neoconspersa (Gyelnik) Hale Syn.: Parmelia neoconspersa
neorimalis (Elix & P. M. Armstr.) Elix & T. H. Nash (Nash & Elix 2004)
neotaractica Hale
neowyomingica Hale
nigrolavicola T. H. Nash & Elix (Nash & Elix 2004)
nigropsoromifera (T. H. Nash) Egan Syn.: Parmelia nigropsoromifera
nigroweberi T. H. Nash & Elix (Nash & Elix 2004)

norchlorochroa Hale
norhypopsila Hale
novomexicana (Gyelnik) Hale Syns.: *Parmelia novomexicana*, *P. tuberculata*, *P. arseneana*
occidentalis (Essl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch (Blanco et al. 2004b) Syns.:
Neofuscelia occidentalis, *Parmelia occidentalis*
oleosa (Elix & P. M. Armstrong) Elix & T. H. Nash
piedmontensis (Hale) Hale Syn.: *Parmelia piedmontensis*
planilobata (Gyelnik) Hale
plittii (Gyelnik) Hale Syn.: *Parmelia plittii*
pseudocongensis Hale (Nash & Elix 2004)
psoromifera (Kurok.) Hale Syn.: *Parmelia psoromifera*
pustulosa (Essl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch (Blanco et al. 2004b) Syns.:
Neofuscelia pustulosa, *Parmelia pustulosa*
schmidtii Hale
standaertii (Gyelnik) Hale (Nash & Elix 2004)
stenophylla (Ach.) Ahti & D. Hawksw. Syn.: *Parmelia stenophylla* (Ahti & Hawksworth 2005)
stenophylloides (Müll. Arg.) Hale
subcumberlandia Elix & T. H. Nash (Nash & Elix 2004)
subdecipiens (Vainio) Hale Syn.: *Parmelia subdecipiens*
subhosseana (Essl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch (Blanco et al. 2004b) Syns.:
Neofuscelia subhosseana, *Parmelia subhosseana*
subplittii Hale (Nash & Elix 2004)
subramigera (Gyelnik) Hale Syn.: *Parmelia subramigera*
substenophylloides Hale
subtasmanica Elix & T. H. Nash (Nash & Elix 2004)
tegeta Elix & Johnston (Nash et al. 1998)
tinctina (Maheu & Gillet) Hale (Nash & Elix 2004)
tuberculata (Gyelnik) T. H. Nash & Elix (Nash & Elix 2004)
tuckeriana Elix & T. H. Nash (Nash & Elix 2004)
tucsonensis (T. H. Nash) Egan Syn.: *Parmelia tucsonensis*
vagans (Nyl.) Hale
verruculifera (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch (Blanco et al. 2004b) Syns.:
Neofuscelia verruculifera, *Parmelia verruculifera*
viriduloumbrina (Gyelnik) Lendemer (Lendemer 2005b)
weberi (Hale) Hale Syn.: *Parmelia weberi*
wyomingica (Gyelnik) Hale Syn.: *Parmelia wyomingica*
arseneana (Gyelnik) Hale = *X. novomexicana*
centrifuga (L.) Hale = *Arctoparmelia centrifuga*
congensis (Stein) Hale Syn.: *Parmelia congensis*, but only known as far north as Mexico
hypopsila (Müll. Arg.) Hale = misidentification for North America; most specimens are *X. angustiphylla*
incurva (Pers.) Hale = *Arctoparmelia incurva*
ioanis-simae (Gyelnik) Hale = *X. taractica*, but see note below
kurokawae (Hale) Hale = *X. lavicola*
lecanorica (Hale) Hale Syn.: *Parmelia lecanorica* Not in North America
separata (Th. Fr.) Hale = *Arctoparmelia separata*
somloënsis (Gyelnik) Hale = *Xanthoparmelia stenophylla*
subcentrifuga (Oxner) Hale = *Arctoparmelia subcentrifuga*
subconspersa (Nyl.) Hale = *Flavoparmelia rutidota*
taractica (Kremp.) Hale = known from Mexico, but misidentification for our area; western N. A. specimens are mostly *X. coloradoensis* and eastern N. A. specimens are mostly *X. viriduloumbrina*
tasmanica (Hooker f. & Taylor) Hale North American reports are *X. hypofusca*
tinctina (Maheu & A. Gillet) Hale Syn.: *Parmelia tinctina* Not in North America

XANTHOPSORA Gotth. Schneider & W. A. Weber = XANTHOPSORELLA
texana (W. A. Weber) Gotth. Schneider & W. A. Weber = *Xanthopsorella texana*

XANTHOPSORELLA Kalb & Hafellner

texana (W. A. Weber) Kalb & Hafellner Syns.: *Xanthopsora texana*, *Psora texana*, *Lecidea texana*

XANTHORIA (Fr.) Th. Fr.

parietina (L.) Th. Fr. Syn.: *Teloschistes parietinus*

tibellii S. Y. Kondr. & Kärnefelt (Kondratyuk & Kärnefelt 2003a)

alaskana J. W. Thomson = *Polycauliona polycarpa* (Lindblom 1997)

alfredii S. Y. Kondr. & Poelt (Kondratyuk & Poelt 1997) = North American report is *Xanthomendoza montana* (Lindblom 1997)

ascendens S. Y. Kondr. (Lindblom 2004b) = *Polycauliona ascendens*

borealis R. Sant. & Poelt = *Xanthomendoza borealis*

candelaria (L.) Th. Fr. = *Polycauliona candelaria*

candelaria var. **finmarkica** (Ach.) Hillmann = *Polycauliona candelaria*

concinna J. W. Thomson & T. H. Nash = *Xanthomendoza concinna*

elegans (Link) Th. Fr. = *Rusavskia elegans*

elegans var. **splendens** (Darb.) M. S. Christ. ex Poelt = *Rusavskia elegans*

fallax (Hepp ex Arnold) Arnold = *Xanthomendoza fallax*

fulva (Hoffm.) Poelt & Petutschnig (Esslinger & Egan 1995) = *Xanthomendoza fulva*

hasseana Räsänen = *Xanthomendoza hasseana*

lobulata (Flörke) B. de Lesd. = *Calogaya lobulata*

mendozae Räsänen = *Xanthomendoza mendozae*

montana L. Lindblom (Lindblom 1997) = *Xanthomendoza montana*

oregana Gyelnik (Lindblom 1997) = *Xanthomendoza oregana*

papillifera (Vainio) Poelt = *Rusavskia papillifera*

pollinarioides L. Lindblom & D. M. Wright (Lindblom 2004b) = *Polycauliona pollinarioides*

polycarpa (Hoffm.) Th. Fr. ex Rieber = *Polycauliona polycarpa*

ramulosa (Tuck.) Herre = *Polycauliona polycarpa* (Lindblom 1997)

sorediata (Vainio) Poelt = *Rusavskia sorediata*

subramulosa Räsänen = *Xanthomendoza subramulosa*

tenax L. Lindblom (1997) = *Polycauliona tenax*

tenuiloba L. Lindblom (Lindblom 2004b) = *Polycauliona tenuiloba*

ulophyllodes Räsänen = *Xanthomendoza ulophyllodes*

weberi S. Y. Kondr. & Kärnefelt = *Xanthomendoza weberi*

wetmorei S. Y. Kondr. & Kärnefelt (Kondratyuk & Kärnefelt 2003a) = *Xanthomendoza weberi* (Knudsen et al. 2011b)

XENONECTRIELLA Weese

***lutescens** (Arnold) Weese (Zhurbenko 2009a)

XEROTREMA Sherwood & Coppins

⁺**megalospora** Sherwood & Coppins

XYLEBORUS R. C. Harris & Ladd (Harris & Ladd 2007)

nigricans R. C. Harris & Lendemer (Lendemer & Harris 2015b)

sporodochifer R. C. Harris & Ladd (Harris & Ladd 2007)

XYLOGRAPHA (Fr.) Fr.

bjoerkii T. Sprib. (Spribille et al. 2014a)

carneopallida (Räsänen) T. Sprib. (Spribille et al. 2014a)

crassithallia B. D. Ryan & T. H. Nash (Ryan 2004b) Possibly a synonym of *X. difformis* (Spribille et al. 2014a)

difformis (Vainio) Vainio (Spribille et al. 2014a)

disseminata Willey

erratica T. Sprib. (Spribille et al. 2014a)

hians Tuck.

opegraphella Nyl.
pallens (Nyl.) Malmgren (Spribille et al. 2014a)
parallela (Ach.) Fr.
rubescens Räsänen (Spribille et al. 2014a)
schofieldii T. Sprib. (Spribille et al. 2014a)
septentrionalis T. Sprib. (Spribille et al. 2014a)
soralifera Holien & Tønsberg (Holien & Tønsberg 2008)
stenospora T. Sprib. & Resl (Spribille et al. 2014a)
trunciseda (Th. Fr.) Minks ex Redinger
vermicularis T. Sprib. (Spribille et al. 2014a)
vitiligo (Ach.) J. R. Laundon
 abietina (Pers.) Zahlbr. = *X. parallela*
 micrographa G. Merr. = *X. hians*
 pruinodisca B. D. Ryan & T. H. Nash (Ryan 2004b) = *X. difformis* (Spribille et al. 2014a)
 spilomatica (Anzi) Th. Fr. = *X. vitiligo*

XYLOPSORA Bendiksby & Timdal (Bendiksby & Timdal 2013)
friesii (Ach.) Bendiksby & Timdal Syn.: *Hypocenomyce friesii*, *Lecidea friesii*, *Psora friesii*

XYLOSCHISTES Vainio ex Zahlbr
platytropa (Nyl.) Vainio (Spribille & Björk 2008)

ZAHLBRUCKNERELLA Herre
calcarea (Herre) Herre
californica Henssen
fabispora Henssen

ZAMENHOFIA Clauzade & Cl. Roux = *PORINA*
 hibernica (P. James & Swinscow) Clauzade & Cl. Roux = *Porina hibernica*

ZWACKHIA Körber
viridis (Pers. ex Ach.) Poetsch & Schied. (Ertz & Tehler 2011) Syn.: *Opegrapha viridis*

ZWACKHIOMYCES Grube & Hafellner
 ***arenicola** R. C. Harris (Harris 1995a)
 ***berengerianus** (Arnold) Grube & Triebel
 ***cladoniae** (C. W. Dodge) Diederich (Alstrup & Cole 1998)
 ***coepulonus** (Norman) Grube & R. Sant. (Goward et al. 1996)
 ***diederichii** D. Hawksw. & Iturr. (Zhurbenko & Pino-Bodas 2017)
 ***dispersus** (J. Lahm ex Körber) Triebel & Grube Syn.: *Pharcidia dispersa*
 ***euplocinus** Hafellner, Grube & Egan
 ***macrosporus** Alstrup & Olech (Zhurbenko 2013)

ACKNOWLEDGEMENTS

I owe thanks to the many colleagues who continue to provide suggested corrections and/or additions.

LITERATURE CITED

- Adler, M. T. 1997. Polymorphism of vegetative propagules in *Punctelia punctilla* (Parmeliaceae, Lecanorales) and the delimitation of the species. *Mycotaxon* 63: 57-70.
 Ahti, T. 1961. Taxonomic studies on reindeer lichens (*Cladonia*, subgenus *Cladina*). *Annales Botanici Societatis Zoologicae Botanicae Fennicae 'Vanamo'* 32(1): i-iv+1-160.
 Ahti, T. 1980. Taxonomic revision of *Cladonia gracilis* and its allies. *Annales Botanici Fennici* 17: 195-243.
 Ahti, T. 1998. A revision of *Cladonia stricta* [Ülevaade liigist *Cladonia stricta*]. *Folia Cryptogamica Estonica* 32: 5-8.
 Ahti, T. 2000. *Cladoniaceae*. *Flora Neotropica*, 78. Organization for Flora Neotropica and New York Botanical Garden, Bronx. 362 pages.

- Ahti, T. 2007. Further studies on the *Cladonia verticillata* group (Lecanorales) in East Asia and western North America. *Bibliotheca Lichenologica* 96: 5-19.
- Ahti, T. & I. Brodo. 1981. *Cladonia labradorica*, sp. nov., and *C. kanewskii* in Canada. *The Bryologist* 84(2): 238-241.
- Ahti, T. & P. T. DePriest. 2001. New combinations of *Cladina* epithets in *Cladonia* (Ascomycotina: Cladoniaceae). *Mycotaxon* 78: 499-502.
- Ahti, T. & S. Hammer. 2002. *Cladonia*, pp. 131-158. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Ahti, T. & D. L. Hawksworth. 2005. *Xanthoparmelia stenophylla*, the correct name for *X. somloënsis*, one of the most widespread usnic acid containing species of the genus. *Lichenologist* 37: 363-366.
- Ahti, T., R. Pino-Bodas, A. Flakus & S. Stenroos. 2016. Additions to the global diversity of *Cladonia*. *Lichenologist* 48(5): 517-526.
- Ahti, T. and S. Stenroos. 2008. *Cladonia oricola*, a new coastal species of reindeer lichen in eastern North America. *Abhandlungen des Westfälischen Museums der Natkunde* 70: 405-410.
- Allen, J. L. & J. C. Lendemer. 2015. *Japewiella dollypartonia*, a new widespread lichen in the Appalachian Mountains of Eastern North America. *Castanea* 80(1): 59-65.
- Allen, J. L. & R. T. McMullin. 2015. *Chaenotheca balsamconensis*, a new calicioid lichen on *Trichaptum abietinum* from North America that is benefiting from widespread conifer fatalities. *The Bryologist* 118(1): 54-58.
- Alstrup, V. 2004. New records in distribution of lichens and lichenicolous fungi. *Graphis Scripta* 16: 46-57.
- Alstrup, V., S. N. Christensen, E. S. Hansen & S. Svane. 1994. The lichens of the Faroes. *Fróðskaparrit* 40: 61-121.
- Alstrup, V. & M. S. Cole. 1998. Lichenicolous fungi of British Columbia. *The Bryologist* 101: 221-229.
- Altermann, S., S. D. Leavitt & T. Goward. 2016. Tidying up the genus *Letharia*: introducing *L. lupine* sp. nov. and a new circumscription for *L. columbiana*. *Lichenologist* 48(5): 423-439.
- Amtoft, A. 2002. *Pyxine subcinerea* in the eastern United States. *The Bryologist* 105: 270-272.
- Amtoft, A. 2006. A new species of *Dermatocarpon* (Verrucariaceae) from the United States and the Bahamas. *The Bryologist* 109(2): 182-184.
- Amtoft, A., F. Lutzoni & J. Miądlikowska. 2008. *Dermatocarpon* (Verrucariaceae) in the Ozark Highlands, North America. *The Bryologist* 111(1): 1-40.
- Anderson, F. & J. Lendemer. 2016. *Aspicilia bicensis* (Megasporeaceae), a new sterile, pustulose lichen from eastern Canada. *The Bryologist* 119(1): 8-15.
- Aptroot, A. 1991. A monograph of the Pyrenulaceae (excluding *Anthracotheceum* and *Pyrenula*) and the Requienellaceae, with notes on the Pleomassariaceae, the Trypetheliaceae and *Mycomicrothelia* (lichenized and non-lichenized Ascomycetes). *Bibliotheca Lichenologica* 44: 1-178.
- Aptroot, A. 1996. New records of lichens and lichenicolous fungi from British Columbia. *The Bryologist* 99: 196-198.
- Aptroot, A. 1997. Corticolous pyrenocarpous ascomycetes (lichenized and non-lichenized) from the Sonoran Desert (Arizona and Mexico). *Nova Hedwigia* 64: 169-176.
- Aptroot, A. 2002a. *Arthopyrenia*, pp. 103-106. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Aptroot, A. 2002b. *Julella*, pp. 254-256. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Aptroot, A. 2002c. *Mycoporum*, pp. 287-288. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Aptroot, A. 2002d. *Peridiothelia*, pp. 340-341. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Aptroot, A. 2002e. *Porina*, pp. 402-405. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Aptroot, A. 2003. A new perspective on the sorediate *Punctelia* (Parmeliaceae) species of North America. *The Bryologist* 106: 317-319.
- Aptroot, A. 2012. A world key to the species of *Anthracotheceum* and *Pyrenula*. *Lichenologist* 44(1): 5-53.
- Aptroot, A. & R. S. Common. 2017. *Pyrenula clavatispora*, a new species from Florida with narrowly clavate ascospores, with a key to similar species. *The Bryologist* 120(3): 270-273.
- Aptroot, A., P. Diederich, E. Sérusiaux & H. J. M. Sipman. 1997. Lichens and Lichenicolous Fungi from New Guinea. *Bibliotheca Lichenologica* 64: 1-220.
- Aptroot, A. & R. Lücking. 2003. Phenotype-based phylogenetic analysis does not support generic separation of *Gyalidea* and *Solorinella* (Ostropales: Asterothyriaceae), pp. 53-78. In M. Jensen (ed.), *Lichenological Contributions in Honour of G.B. Feige*. *Bibliotheca Lichenologica* 86. J. Cramer.
- Aptroot, A. & R. Lücking. 2016. A revisionary synopsis of the Trypetheliaceae (Ascomycota: Trypetheliales). *Lichenologist* 48(6): 763-982.

- Aptroot, A., A. A. Menezes, A. B. Xavier-Leite, V. m. dos Santos, M. M. E. Alves & M. E. S. Cáceres. 2014. Revision of the corticolous *Mazosia* species, with a key to *Mazosia* species with 3-septate ascospores. *Lichenologist* 46(4): 563-572.
- Aptroot, A., S. Parnmen, R. Lücking, E. Baloch, P. Jungbluth, M. E. S. Cáceres & H. T. Lumbsch. 2014. Molecular phylogeny resolves a taxonomic misunderstanding and places *Geisleria* close to *Absconditella* s. str. (Ostropales: Stictidaceae). *Lichenologist* 46(1): 115-128.
- Aptroot, A. & F. Schumm. 2012. The genus *Melanophloea*, an example of convergent evolution towards polyspory. *Lichenologist* 44: 501-509.
- Aptroot, A., G. Thor, R. Lücking, J.A. Elix & J.L. Chaves. 2009. The lichen genus *Herpothallon* reinstated. In A. Aptroot, M.R.D. Seaward & L.B. Sparrius. *Biodiversity and ecology of lichens: liber amicorum Harrie Sipman*. Bibliotheca Lichenologica 99:19-66.
- Arcadia, L. i. 2013. *Usnea dasopoga*, a name to be reinstated for *U. filipendula*, and its orthography. *Taxon* 62(3): 604-605.
- Arcadia, L. i. & K. Knudsen. 2012. The name *Myriospora* is available for the *Acarospora smaragdula* group. *Opuscula Philolichenum* 11: 19-25.
- Archer, A. W. 2006. The Lichen Family Graphidaceae in Australia. *Bibliotheca Lichenologica* 94: 1-191.
- Archer, A. W. & M. I. Messuti. 1997. *Pertusaria velata* (Turner) Nyl. and its synonyms. *Mycotaxon* 61: 375-379.
- Argüello, A., A. Crespo & D. L. Hawksworth. 2007a. Neo- and epitypifications to fix the application of the names *Parmelina carporrhizans* and *P. quercina*. *Lichenologist* 39: 397-399.
- Argüello, A., R. del Prado, P. Cubas & A. Crespo. 2007b. *Parmelina quercina* (Parmeliaceae, Lecanorales) includes four phylogenetically supported morphospecies. *Biological Journal of the Linnean Society* 91: 455-467.
- Ariyawansa, H. A. et al. 2015. Fungal diversity notes 111-252 – taxonomic and phylogenetic contributions to fungal taxa. *Fungal Diversity* 75(1):27-274.
- Arup, U. 1997. Correction of reports of two *Caloplaca* species from North America. *The Bryologist* 100: 516.
- Arup, U. 2004. Three overlooked *Lecidea* species in Sweden. *Symbolae Botanicae Upsalienses* 34: 39-48.
- Arup, U. 2006. A new taxonomy of the *Caloplaca citrina* group in the Nordic countries, except Iceland. *Lichenologist* 38: 1-20.
- Arup, U. 2009. The *Caloplaca holocarpa* group in the Nordic countries, except Iceland. *Lichenologist* 41:111-130.
- Arup, U. & M. Grube. 1999. Where does *Lecanora demissa* (Ascomycota, Lecanorales) belong? *Lichenologist* 31: 419-430.
- Arup, U., U. Söchting & P. Frödén. 2013. A new taxonomy of the family Teloschistaceae. *Nordic Journal of Botany* 31: 16-83.
- Arup, U., J. Vondrák & M. G. Halici. 2015. *Parvoplaca nigroblastidiata*, a new corticolous lichen (Teloschistaceae) in Europe, Turkey and Alaska. *Lichenologist* 47(6): 379-385.
- Baloch, E., H. T. Lumbsch, R. Lücking & M. Wedin. 2013a. New combinations and names in *Gyalecta* for former *Belonia* and *Pachyphiale* (Ascomycota, Ostropales) species. *Lichenologist* 45(6): 723-727.
- Baloch, E., G. Gilenstam & M. Wedin. 2009. Phylogeny and classification of *Cryptodiscus*, with a taxonomic synopsis of the Swedish species. *Fungal Diversity* 38: 51-68.
- Baloch, E., G. Gilenstam & M. Wedin. 2013b. The relationships of *Odontotrema* (Odontotremataceae) and the resurrected *Sphaeropezia* (Stictidaceae) – new combinations and three new *Sphaeropezia* species. *Mycologia* 105(2): 384-397.
- Barr, M. E., S. B. Huhndorf & C. T. Rogerson. 1996. The Pyrenomycetes Described by J. B. Ellis. *Memoirs of the New York Botanical Garden* 79: 1-137.
- Barr, M. E., C. T. Rogerson, S. J. Smith & J. H. Haines. 1986. An annotated catalogue of the Pyrenomycetes described by Charles H. Peck. *Bulletin of the New York State Museum* 459: 1-74.
- Barrett, P. E. & J. W. Thomson. 1975. Lichens from a High Arctic coastal lowland, Devon Island, N.W.T. *The Bryologist* 78(2): 160-167.
- Beeching, S. Q. 2007. *Dimelaena tenuis* (lichenized Ascomycota) new to North America, and *Xanthoparmelia pseudocongensis* new to Georgia, USA. *Opuscula Philolichenum* 4: 55-56.
- Benatti, M. N. & J. A. Elix. 2012. The true identity of *Bulbothrix goebelii* (Zenker) Hale and the re-establishment of some of its synonyms as accepted species. *Lichenologist* 44: 813-826.
- Bendiksby, M., R. Haugan, T. Spribille & E. Timdal. 2015. Molecular phylogenetics and taxonomy of the *Calvitimela aglaea* complex (Tephromelataceae, Lecanorales). *Mycologia* 107(6): 1172-1183.
- Bendiksby, M. & E. Timdal. 2013. Molecular phylogenetics and taxonomy of *Hypocenocyce* sensu lato (Ascomycota: lecanoromycetes): extreme polyphyly and morphological/ecological convergence. *Taxon* 62(5): 940-956.
- Berger, F. & S. LaGreca. 2014. Contributions to the lichen flora of Bermuda – Part I. New records, new combinations, and interesting collections of lichenized ascomycetes. *Evansia* 31(2): 41-68.
- Bigelow, H. E. 1983. Spore ornamentation in the Tricholomataceae II. *Sydowia* 36: 11-18.
- Bird, C. D. 1974. Studies on the lichen genus *Evernia* in North America. *Canadian Journal of Botany* 52: 2427-2434.
- Bjerke, J. W. 2003. *Menegazzia subsimilis*, a widespread sorediate lichen. *Lichenologist* 35: 393-396.
- Björk, C. R., T. Goward, & T. Spribille. 2009. New records and range extensions of rare lichens from waterfalls and sprayzones in inland British Columbia, Canada. *Evansia* 219-224.

- Blanco, O., A. Crespo, P. K. Divakar, T. L. Esslinger, D. L. Hawksworth & H. T. Lumbsch. 2004a. *Melanelixia* and *Melanohalea*, two new genera segregated from *Melanelia* (Parmeliaceae) based on molecular and morphological data. *Mycological Research* 108: 873-884.
- Blanco, O., A. Crespo, J. A. Elix, D. L. Hawksworth, and H. T. Lumbsch. 2004b. A molecular phylogeny and a new classification of parmelioid lichens containing *Xanthoparmelia*-type lichenan (Ascomycota: Lecanorales). *Taxon* 53(4): 959-975.
- Blanco, O., A. Crespo, P. K. Divakar, J. A. Elix & H. T. Lumbsch. 2005. Molecular phylogeny of parmotrema-like lichens (Ascomycota, Parmeliaceae). *Mycologia* 97: 150-159.
- Boluda, C. G., D. L. Hawksworth, P. K. Divakar, A. Crespo & V. J. Rico. 2016. Microchemical and molecular investigations reveal *Pseudephebe* species as cryptic with an environmentally modified morphology. *Lichenologist* 48(5): 527-543.
- Bowler, P. A. & J. E. Marsh. 2004. *Niebla*, pp. 368-380. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Brako, L. 1991. *Phyllopsora* (Bacidiaceae). *Flora Neotropica*, 55. New York Botanical Garden (for Organization for Flora Neotropica), Bronx, NY. 66 pages.
- Breuss, O. 1996. Ein verfeinertes Gliederungskonzept für *Catapyrenium* (lichenisierte Ascomyceten, Verrucariaceae) mit einem Schlüssel für die bisher bekannten Arten. *Annalen des Naturhistorischen Museums in Wien* 98 B Suppl: 35-50.
- Breuss, O. 1998. On the taxonomy of "*Catapyrenium*" *plumbeum* (lichenized Ascomycetes, Verrucariaceae). *Annalen des Naturhistorischen Museums in Wien* 100B: 671-676.
- Breuss, O. 2000. New taxa of pyrenocarpous lichens from the Sonoran region. *The Bryologist* 103: 705-709.
- Breuss, O. 2001. *Helocarpon lesdainii* (Lichens, Helocarpaceae) in the Pacific Northwest. *The Bryologist* 104: 600-601.
- Breuss, O. 2002a. *Endocarpon*, pp. 181-187. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Breuss, O. 2002b. Four *Verrucaria* species new to America. *Evansia* 19: 26-28.
- Breuss, O. 2002c. The lichen genus *Henrica* (Verrucariaceae) new to North America. *The Bryologist* 105: 398-399.
- Breuss, O. 2002d. *Placidium*, pp. 384-393. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Breuss, O. 2002e. *Placopyrenium*, pp. 393-397. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Breuss, O. 2002f. *Thrombium*, pp. 483-484. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Breuss, O. 2003. Eine neue *Dermatocarpon*-Art (lichenisierte Ascomyceten, Verrucariales) aus Kanada. *Bibliotheca Lichenologica* 86: 99-102.
- Breuss, O. 2005. A new species of the lichen genus *Neocatapyrenium* (Verrucariaceae) from North America. *The Bryologist* 108: 537-539.
- Breuss, O. 2007a. *Bagliettoa*, p. 109. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Breuss, O. 2007b. *Verrucaria*, pp. 335-377. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Breuss, O. 2009. A synopsis of the lichen genus *Placopyrenium* (Verrucariaceae), with descriptions of new taxa and a key to all species. *Bibliotheca Lichenologica* 99: 93-112.
- Breuss, O. 2016. *Byssoloma maderense* is not endemic to Macaronesia. *Evansia* 33(2): 54-62.
- Breuss, O. & C. C. Bratt. 2000. Catapyrenoid lichens in California. *Bulletin of the California Lichen Society* 7(2): 36-43.
- Breuss, O. & B. McCune. 1994. Additions to the pyrenolichen flora of North America. *The Bryologist* 97: 365-370.
- Breuss, O. & T. Spribille. 2001. *Verrucaria kootenaica*, a new pyrenocarpous lichen from the northern Rocky Mountains. *The Bryologist* 104: 453-455.
- Brodo, I. M. 1967. Lichens collected in Wisconsin on the 1965 foray of the American Bryological Society. *The Bryologist* 70(2): 208-227.
- Brodo, I. M. 1984. The North American species of the *Lecanora subfusca* group, pp. 63-185. In *Beiheft zur Nova Hedwigia* 79. J. Cramer - Vaduz.
- Brodo, I. M. 1988. Lichens of the Ottawa region. *Sylogus* No. 29. National Museum of Natural Sciences, Ottawa, Canada. pp. 1-137.
- Brodo, I. M. 1991. Studies in the lichen genus *Ochrolechia*. 2. Corticolous species of North America. *Canadian Journal of Botany* 69 (4): 733-772.
- Brodo, I. M. 1995. Lichens and lichenicolous fungi of the Queen Charlotte Islands, British Columbia, Canada. 1. Introduction and new records for B.C., Canada and North America. *Mycotaxon* 56: 135-173.
- Brodo, I. M. 2001. *Vezdaea acicularis*, an addition to the North American lichen flora. *The Bryologist* 104: 297-298.

- Brodo, I. M. 2004. A new saxicolous *Porina* (Ascomycota, Porinaceae) from maritime rocks of Haida Gwaii (Queen Charlotte Islands), British Columbia, Canada. *Bibliotheca Lichenologica* 88: 43-48.
- Brodo, I. M. 2010. The lichens and lichenicolous fungi of Haida Gwaii (Queen Charlotte Islands), British Columbia, Canada. 5. A new species of *Lecanora* from shoreline rocks. *Botany* 88: 352-358.
- Brodo, I. M. & T. Ahti. 1996. Lichens and lichenicolous fungi of the Queen Charlotte Islands, British Columbia, Canada. 2. The Cladoniaceae. *Canadian Journal of Botany* 74: 1147-1180.
- Brodo, I. M. & A. Aptroot. 2005. Corticolous species of *Protoparmelia* (lichenized Ascomycotina) in North America. *Canadian Journal of Botany* 83(8): 1075-1081.
- Brodo, I. M., W. L. Culberson, & C. F. Culberson. 2008. *Haematomma* (Lecanoraceae) in North and Central America, including the West Indies. *The Bryologist* 111: 363-423.
- Brodo, I. M. & J. Lendemer. 2012. On the perplexing variability of reproductive modes in the genus *Ochrolechia*: Notes on *O. africana* and *O. arborea* in eastern North America. *Opuscula Philolichenum* 11: 120-134.
- Brodo, I. M. & J. Lendemer. 2015. A revision of the saxicolous, esorediate species of *Ainoa* and *Trapelia* (Baeomycetaceae and Trapeliaceae, lichenized Ascomycota) in North America, with the description of two new species. *The Bryologist* 118(4): 385-399.
- Brodo, I. M. & B. McCune. 2017. *Ochrolechia brodoi*, a new lichen for North America from Alaska, with updates to the key of corticolous North American species. *Evansia* 34(3): 110-113.
- Brodo, I. M., S. Duran Sharnoff & S. Sharnoff 2001. *Lichens of North America*. Yale University Press, New Haven & London. 795 pages.
- Brodo, I. M. & R. Santesson. 1997. Lichens of the Queen Charlotte Islands, British Columbia, Canada. 3. Marine species of *Verrucaria* (Verrucariaceae, Ascomycotina). *Journal of the Hattori Botanical Laboratory* 82: 27-37.
- Brodo, I. M. & V. Wirth. 1998. Lichens and lichenicolous fungi of the Queen Charlotte Islands, British Columbia, Canada. 4. The genus *Fuscidea* (Fuscideaceae), pp. 149-162. In M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.
- Buck, W. R. 1998. Lichen flora of eastern North America: the genus *Gomphillus* (Gomphillaceae), pp. 71-76. In M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.
- Buck, W. R. & R. C. Harris. 2001. *Leucocarpia biatorella* (Verrucariaceae), new to North America. *Evansia* 18: 82-83.
- Buck, W. R. & R. C. Harris. 2002. *Epigloea* (Epigloeaceae) new to North America. *Evansia* 19: 83-84.
- Buck, W. R., R. C. Harris, A. J. Shaw, M. D. Piercey-Normore, A. Tabae, J. Antonovics & E. E. Crone. 1999. Unusual lichens under electricity pylons on zinc-enriched soil. *The Bryologist* 102: 130-132.
- Buck, W. R. & J. C. Lendemer. 2012. *Puttea* (Pilocarpaceae) in eastern North America. *Opuscula Philolichenum* 11: 141-144.
- Buck, W. R. & E. Sérusiaux. 2000. *Gyalectidium yahriae*, sp. nov. (lichenized Ascomycetes, Gomphillaceae) from Florida and Papua New Guinea. *The Bryologist* 103: 134-138.
- Büdel, B. & T. H. Nash III. 2002. *Peltula*, pp. 331-340. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Büdel, B., A. Rauhut & M. Schultz. 2007. *Peltula*, pp. 388-389. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited*, Arizona State University, Tempe.
- Büdel, B., M. Schulz & T. H. Nash III. 2002. *Heppia*, pp. 204-207. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Bungartz, F. 2004. New and previously unrecorded saxicolous species of *Buellia* s.l. with one-septate ascospores from the Greater Sonoran Desert Region. *Mycotaxon* 90: 81-123.
- Bungartz, F., J. A. Elix & T. H. Nash III. 2004a. The genus *Buellia sensu lato* in the Greater Sonoran Desert Region: saxicolous species with one-septate ascospores containing xanthones. *The Bryologist* 107: 459-479.
- Bungartz, F. & A. M. Fryday. 2004. *Buellia saurina* belongs to the genus *Rhizocarpon* (Rhizocarpaceae, lichenized Ascomycetes). *The Bryologist* 107: 75-78.
- Bungartz, F. & T. H. Nash III. 2004a. The *Buellia aethalea*-group in the Greater Sonoran Desert Region with reference to similar species in North America. *The Bryologist* 107: 441-458.
- Bungartz, F. & T. H. Nash III. 2004b. *Buellia subalbula* (Nyl.) Müll. Arg. and *B. amabilis* de Lesd., two species from North America with one-septate ascospores: A comparison with *Buellia* ["Diplotomma"] *venusta* (Körb.) Lettau. *Bibliotheca Lichenologica* 88: 49-66.
- Bungartz, F. & T. H. Nash III. 2004c. *Buellia turgescens* is synonymous with *Buellia badia* and must not be included in *Amandinea*. *The Bryologist* 107: 21-27.
- Bungartz, F., T. H. Nash III & B. Ryan. 2004b. Morphology and anatomy of chasmolithic versus epilithic growth: a taxonomic revision of inconspicuous saxicolous *Buellia* species from the Sonoran Desert Region generally ascribed to the "*Buellia punctata*" group. *Canadian Journal of Botany* 82: 540-562.

- Bungartz, F., A. Nordin & M. Grube. 2007. *Buellia*, pp. 113-179. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Bungartz, F., C. Scheidegger & T. H. Nash III. 2002. *Buellia dispersa* A. Massal., a variable lichen species from semi-arid to arid environments of North America and Europe. *Bibliotheca Lichenologica* 82: 19-35.
- Bystrek, J. & J. Fabiszewski. 1998. Materials to North American lichen flora. *Acta Societatis Botanicorum Poloniae* 67: 87-93.
- Cáceres, M. E. da S., A. Aptroot, C. de O. Mondonça, L. A. dos Santos & R. Lücking. 2017. *Sprucidea*, a further new genus of rain forest lichens in the family Malmideaceae (Ascomycota). *The Bryologist* 120(2): 202-211.
- Calatayud, V., J. Hafellner & P. Navarro-Rosinés. 2004. *Lichenostigma*, pp. 664-669. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Calatayud, V., P. Navarro-Rosinés & J. Hafellner. 2002. A synopsis of *Lichenostigma* subgen. *Lichenogramma* (Arthoniales), with a key to the species. *Mycological Research* 106: 1230-1242.
- Canals, A., M. Hernández-Mariné, A. Gómez-Bolea & X. Llimona. 1997. *Botryolepraria*, a new monotypic genus segregated from *Lepraria*. *Lichenologist* 29: 339-345.
- Carlberg, T. 2016. *Phylloblastia fortuita* (Verrucariaceae), a foliicolous lichen new to California and North America. *Bulletin of the California Lichen Society* 23(1): 9-12.
- Carlberg, T., P. M. Jørgensen & T. Tønsberg. 2016. *Scytinium singulare*, a new lichen species from coastal California. *North American Fungi* 11(4): 1-6.
- Cestaro, L., T. Tønsberg & L. Muggia. 2016. Phylogenetic data and chemical traits characterize a new species in the lichen genus *Tephromela*. *Herzogia* 29(2): 383-402.
- Claassen, E. 1912. Alphabetical list of lichens collected in several counties of northern Ohio. *Ohio Naturalist* 12 (8): 543-548.
- Claassen, E. 1917. Second alphabetical list of the lichens collected in several counties of northern Ohio. *Ohio Journal of Science* 18(2): 62-63.
- Clerc, P. 1987. Systematics of the *Usnea fragilesceus* aggregate and its distribution in Scandinavia. *Nordic Journal of Botany* 7: 479-495.
- Clerc, P. 1997. Notes on the genus *Usnea* Dill. ex Adanson. *Lichenologist* 29: 209-215.
- Clerc, P. 2004. Notes on the genus *Usnea* Adanson. II. *Bibliotheca Lichenologica* 88: 79-90.
- Clerc, P. 2007. *Usnea*, pp. 302-335. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Clerc, P. 2011. Notes on the genus *Usnea* Adanson (lichenized Ascomycota). III. *Bibliotheca Lichenologica* 106: 41-51.
- Clerc, P. 2016. Notes on the genus *Usnea* (lichenized Ascomycota, Parmeliaceae) IV. *Herzogia* 29(2): 403-411.
- Clerc, P. & M. A. Herrera-Campos. 1997. Saxicolous species of *Usnea* subgenus *Usnea* (lichenized Ascomycetes) in North America. *The Bryologist* 100: 281-301.
- Clerc, P. & P. F. May. 2007. *Usnea flammea* (Lecanorales) new for North America. *The Bryologist* 110: 126-128.
- Cole, M. S. & D. L. Hawksworth. 2001. Lichenicolous fungi, mainly from the USA, including *Patriciomyces* gen. nov. *Mycotaxon* 77: 305-338.
- Cole, M. S. & D. L. Hawksworth. 2002. *Lichenopeltella heterodermiicola*, a new lichenicolous ascomycete on *Heterodermia speciosa* in Arkansas. *Mycotaxon* 83: 391-396.
- Cole, M. S. & D. L. Hawksworth. 2004. *Lichenoconium christiansenii* sp. nov. from *Nodobryoria abbreviata* (Parmeliaceae) in the Pacific Northwest, with a key to the known lichenicolous species. *Lichenologist* 36: 1-6.
- Coppins, B. J. 2002. Checklist of lichens of Great Britain and Ireland. 87 pp. British Lichen Society.
- Coppins, B. J. 2008. *Micarea perparvula* in North America. *Opuscula Philolichenum* 5: 23-24.
- Coppins, B. J. & A. M. Fryday. 2006a. New or previously misunderstood species of *Lithographa* and *Rimularia* (Agyriaceae) from the southern subpolar region and western Canada. *Lichenologist* 38: 93-107.
- Coppins, B. J. & A. M. Fryday. 2006b. Reassessment of some lichen species described by Josiah Lowe, and notes on some other North American lecideoid lichens. *The Bryologist* 109: 9-17.
- Coppins, B. J. & S. Y. Kondratyuk. 1998. *Opegrapha trassii* sp. nov., a new lichenicolous fungus on *Heterodermia* [*Opegrapha trassii* sp. nov., uus liheniseerunud seenel liik sambliku *Heterodermia* tallustelt]. *Folia Cryptogamica Estonica* 32: 9-14.
- Coppins, B. J. & P. F. May. 2001. *Micarea neostipitata*, a new species with pale stipitate pycnidia from eastern North America. *Lichenologist* 33: 487-490.
- Coppins, B. J. & L.-E. Muhr. 1997. *Micarea lapillicola* (Vain.) Coppins & Muhr, a previously misunderstood species from NW Europe. *Graphis Scripta* 8: 45-49.
- Coppins, B. J. & T. Spribille. 2004. *Micarea subalpina* Coppins & Spribille, a new subalpine species from the Rocky Mountains, USA. *Lichenologist* 36: 97-102.
- Coppins, B. J. & T. Tønsberg. 2001. A new xanthone-containing *Micarea* from northwest Europe and the Pacific Northwest of North America. *Lichenologist* 33: 93-96.

- Czarnota, P. & B. J. Coppins. 2007. Contribution to the knowledge of rare *Bacidia* s. lat. (Lecanorales, lichenized Ascomycetes) from Central Europe including a new, pallid forma of *Bacidia hemipolia*. *Nova Hedwigia* 85(3-4): 503-513.
- Davydov, E. A., D. Peršoh & G. Rambold. 2010. The systematic position of *Lasallia caroliniana* (Tuck.) Davydov, Peršoh & Rambold *comb. nova* and considerations on the generic concept of *Lasallia* (Umbilicariaceae, Ascomycota). *Mycological Progress* 9: 261-266.
- Degelius, G. 1954. The lichen genus *Collema* in Europe: Morphology, Taxonomy, Ecology. *Symbolae Botanicae Upsalienses* 13: 1-499.
- Degelius, G. 1957. The epiphytic lichen flora of the birch stands in Iceland. *Acta Horti Gothoburgensis* 22: 1-51.
- Degelius, G. 1974. The lichen genus *Collema* with special reference to the extra-European species. *Symbolae Botanicae Upsalienses* 20: 1-215.
- DePriest, P. T. & B. W. Hale. 1998. A validated species and a new combination in *Parmotrema* (Ascomycotina: Parmeliaceae). *Mycotaxon* 67: 207-209.
- DePriest, P. T., M. Sikaroodi, J. D. Lawrey & P. Diederich. 2005. *Marchandiomyces lignicola* sp. nov. shows recent and repeated transition between a lignicolous and a lichenicolous habit. *Mycological Research* 109: 57-70.
- Dibben, M. J. 1980. The chemosystematics of the lichen genus *Pertusaria* in North America north of Mexico. *Milwaukee Public Museum, Publications in Biology and Geology*, No. 5, pp. i-iv & 1-162.
- Diederich, P. 1996. The Lichenicolous Heterobasidiomycetes. *Bibliotheca Lichenologica* 61: 1-198.
- Diederich, P. 2002. *Kalchbrenneriella*, a new genus to accommodate the lichenicolous Hyphomycete *Torula cyanescens*. *The Bryologist* 105: 411-414.
- Diederich, P. 2003. New species and new records of American lichenicolous fungi [Neue Arten und neue Funde von amerikanischen lichenicolen Pilzen]. *Herzogia* 16: 41-90.
- Diederich, P. 2004a. *Sclerococcum*, p. 691. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Diederich, P. 2004b. *Tremella*, pp. 710-714. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Diederich, P. 2007a. New or interesting lichenicolous Heterobasidiomycetes. *Opuscula Philolichenum* 4: 11-22.
- Diederich, P. 2007b. *Obryzum*, pp. 401-402. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Diederich, P., D. Ertz, J. D. Lawrey, M. Sikaroodi & W. A. Untereiner. 2013. Molecular data place the hyphomycetous lichenicolous genus *Sclerococcum* close to *Dactylospora* (Eurotiomycetes) and *S. parmeliae* in *Cladophialophora* (Chaetothyriales). *Fungal Diversity* 58: 61-72.
- Diederich, P., D. Ertz, & J. Etayo. 2010. An enlarged concept of *Llimoniella* (lichenicolous Helotiales), with a revised key to the species and notes on related genera. *Lichenologist* 42: 253-269.
- Diederich, P. & J. Etayo. 2000. A synopsis of the genera *Skyttea*, *Llimoniella* and *Rhymbocarpus* (lichenicolous Ascomycota, Leotiales). *Lichenologist* 32: 423-485.
- Diederich, P. & J. Etayo. 2004a. *Rhymbocarpus*, pp. 686-687. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Diederich, P. & J. Etayo. 2004b. *Skyttea*, pp. 693-695. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Diederich, P., J. Kocourková, J. Etayo & M. Zhurbenko. 2007. The lichenicolous *Phoma* species (coelomycetes) on *Cladonia*. *Lichenologist* 39: 153-163.
- Diederich, P. & J. D. Lawrey. 2007. New lichenicolous, muscicolous, corticolous and lignicolous taxa of *Burgoa* s. l. and *Marchandiomyces* s. l. (anamorphic Basidiomycota), a new genus for *Omphalina foliacea*, and a catalogue and a key to the non-lichenized, bulbilliferous basidiomycetes. *Mycological Progress* 6: 61-80.
- Diederich, P., J. D. Lawrey, M. Sikaroodi, P. P. G. van den Boom & D. Ertz. 2012. *Briancoppinsia*, a new coelomycetous genus of Arthoniaceae (Arthoniales) for the lichenicolous *Phoma cytospora*, with a key to this and similar taxa. *Fungal Diversity* 52: 1-12.
- Diederich, P. & M. Zhurbenko. 2001. Nomenclatural notes on *Taeniolella rolfii* (lichenicolous hyphomycetes). *Graphis Scripta* 12: 37-40.
- Diederich, P., M. Zhurbenko & J. Etayo. 2002. The lichenicolous species of *Odontotrema* (syn. *Lethariicola*) (Ascomycota, Ostropales). *Lichenologist* 34: 479-501.
- Dillman, K. L., T. Ahti, C. R. Björk, P. Clerc, S. Ekman, T. Goward, J. Hafellner, S. Pérez-Ortega, C. Printzen, S. Savić, M. Schultz, M. Svensson, G. Thor, T. Tønsberg, O. Vitikainen, M. Westberg & T. Spribille. 2012. New records, range extensions and nomenclatural innovations for lichens and lichenicolous fungi from Alaska, U.S.A. *Herzogia* 25(2): 177-210.

- Divakar, P. K., A. Crespo, J. Núñez-Zapata, A. Flakus, H. J. M. Sipman, J. A. Elix & H. T. Lumbsch. 2013. A molecular perspective on generic concepts in the *Hypotrachyna* clade (Parmeliaceae, Ascomycota). *Phytotaxa* 132(1): 21-38.
- Divakar, P. K. et al. 2015. Evolution of complex symbiotic relationships in a morphologically derived family of lichen-forming fungi. *New Phytologist* 208: 1217-1226.
- Divakar, P. K., R. Del-Prado, H. T. Lumbsch, M. Wedin, T. L. Esslinger, S. D. Leavitt & A. Crespo. 2012. Diversification of the newly recognized lichen-forming fungal lineage *Montanelia* (Parmeliaceae, Ascomycota) and its relation to key geological and climatic events. *American Journal of Botany* 99 (12): 2014-2026.
- Divakar, P. K., G. Figueras, N. L. Hladun & A. Crespo. 2010. Molecular phylogenetic studies reveal an undescribed species within the North American concept of *Melanelixia glabra* (Parmeliaceae). *Fungal Diversity* 42: 47-55.
- Dolnik, C., A. Beck, & D. Zarabska. 2010. Distinction of *Cladonia rei* and *C. subulata* based on molecular, chemical and morphological characteristics. *Lichenologist* 42: 373-386.
- Driscoll, K. E., S. R. Clayden & R. C. Harris. 2016. *Lecanora insignis* (Lecanoraceae) and its lichenicolous fungi in North America, including a new species of *Skyttea* (Helotiales). *The Bryologist* 119(1): 39-51.
- Egan, R. S. 2003. What is the lichen *Parmelia graminicola* B. de Lesd.? *The Bryologist* 106: 314-316.
- Egan, R., R. Harms & T. Widhelm. 2005. Studies on the lichen *Parmotrema rigidum* s. lat. from North and South America. *The Bryologist* 108: 402-405.
- Egea, J. M. & P. Torrente. 1995. Especies saxícolas del género *Arthonia* (Arthoniaceae) en áreas costeras de California y Baja California (Estados Unidos y México), pp. 193-204. In F. J. A. Daniels, M. Schulz & J. Peine (eds.), *Flechten Follmann. Contributions to lichenology in Honour of Gerhard Follmann*. Geobotanical and Phytotaxonomical Study Group, Botanical Institute, University of Cologne, Cologne.
- Egea, J. M. & P. Torrente. 1997. *Graphis saxorum* (lichenized Ascomycotina, Graphidaceae) a new species from California and Baja California. *The Bryologist* 100: 207-209.
- Egea, J. M., P. Torrente & B. D. Ryan. 2004a. *Bactrospora*, pp. 32-37. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Egea, J. M., P. Torrente & B. D. Ryan. 2004b. *Lecanographa*, pp. 171-176. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Ekman, S. 1996. The corticolous and lignicolous species of *Bacidia* and *Bacidina* in North America. *Opera Botanica* 127: 1-148.
- Ekman, S. 2004a. *Bacidia*, pp. 18-28. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Ekman, S. 2004b. *Bacidina*, pp. 28-32. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Ekman, S. 2004c. *Mycobilimbia*, pp. 365-367. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Ekman, S. 2009. *Bacidia rosellizans*, a new lichen species from the taiga belt. *Lichenologist* 41(5): 481-487.
- Ekman, S. 2014. The *Bacidia coprodes* group (Ramalinaceae, Lecanoromycetes, Ascomycota), with special reference to the species in Europe and North America. *Phytotaxa* 191(1): 66-80.
- Ekman, S. & M. Svensson. 2014. *Brianaria* (Psoraceae), a new genus to accommodate the *Micareia sylvicola* group. *Lichenologist* 46(3): 285-294.
- Ekman, S. & T. Tønsberg. 1996. A new species of *Megalania* from the North American west coast, and notes on the generic circumscription. *The Bryologist* 99: 34-40.
- Ekman, S., M. Wedin, L. Lindblom & P. M. Jørgensen. 2014. Extended phylogeny and a revised generic classification of the Pannariaceae (Peltigerales, Ascomycota). *Lichenologist* 46(5): 627-656.
- Elix, J. A. 2001. A Revision of the Lichen Genus *Paraparmelia* Elix & J. Johnst. *Bibliotheca Lichenologica* 80: 1-224.
- Elix, J. A. & T. H. Nash III. 1997. A monograph of the lichen genus *Pseudoparmelia* (Ascomycotina, Parmeliaceae). *The Bryologist* 100: 482-498.
- Elix, J. A. & T. H. Nash III. 1999. Two new species of *Xanthoparmelia* (Ascomycotina, Parmeliaceae) from North America. *Mycotaxon* 71: 417-422.
- Elix, J. A. & D. O. Øvstedal. 2004. A new *Lecanora* species from the Arctic with a remarkable chemistry. *Graphis Scripta* 15: 57-59.
- Ertz, D. 2009. Revision of the Corticolous *Opegrapha* Species from the Paleotropics. *Bibliotheca Lichenologica* 102: 1-176.
- Ertz, D., C. Christnach, M. Wedin & P. Diederich. 2005. A World Monograph of the Genus *Plectocarpon* (Roccellaceae, Arthoniales). *Bibliotheca Lichenologica* 91: 1-155.

- Ertz, D. & P. Diederich. 2015. Dismantling Melaspileaceae: a first phylogenetic study of *Buelliella*, *Hemigrapha*, *Karschia*, *Labrocarpon* and *Melaspilea*. *Fungal Diversity* 71: 141-164.
- Ertz, D., P. Diederich, J. D. Lawrey, F. Berger, C. E. Freebury, B. Coppins, A. Gardienet & J. Hafellner. 2015a. Phylogenetic insights resolve Dacampiaceae (Pleosporales) as polyphyletic: *Didymocyrtis* (Pleosporales, Phaeosphaeriaceae) with *Phoma*-like anamorphs resurrected and segregated from *Polycoccum* (Trypetheliales, Polycoccaceae fam. nov.). *Fungal Diversity* 74: 53-89.
- Ertz, D., P. Diederich & J. Miadlikowska. 2004. The lichenicolous *Opegrapha* species (Roccellaceae, Ascomycota) with 3-septate ascospores on *Pertusaria* and *Ochrolechia*. *Botanical Journal of the Linnean Society* 144: 235-241.
- Ertz, D. & J. M. Egea. 2007. *Opegrapha*, pp. 255-266. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited*, Arizona State University, Tempe.
- Ertz, D., J. D. Lawrey, R. S. Common & P. Diederich. 2014. Molecular data resolve a new order of Arthoniomycetes sister to the primarily lichenized Arthoniales and composed of black yeasts, lichenicolous and rock-inhabiting species. *Fungal Diversity* 66:113-137.
- Ertz, D., J. Miadlikowska, F. Lutzoni, S. Dessein, O. Raspé, N. Vigneron, V. Hofstetter & P. Diederich. 2009. Towards a new classification of the Arthoniales (Ascomycota) based on a three-gene phylogeny focussing on the genus *Opegrapha*. *Mycological Research* 113(1): 141-152.
- Ertz, D. & A. Tehler. 2011. The phylogeny of Arthoniales (Pezizomycotina) inferred from nucLSU and RPB2 sequences. *Fungal Diversity* 49: 47-71.
- Ertz, D., A. Tehler, M. Irestedt, A. Frisch, G. Thor & P. van den Boom. 2015b. A large-scale phylogenetic revision of Roccellaceae (Arthoniales) reveals eight new genera. *Fungal Diversity* 70: 31-53.
- Ertz, D., M. Zhurbenko, P. Diederich & J. Miadlikowska. 2003. A new species of *Plectocarpon* (lichenicolous Roccellaceae, Ascomycota) on *Peltigera*. *The Bryologist* 106: 465-467.
- Esslinger, T. L. 1978. Studies in the lichen family Physciaceae. II. The genus *Phaeophyscia* in North America. *Mycotaxon* : 283-320
- Esslinger, T. L. 1994. New species and new combinations in the lichen genus *Physconia* in North America. *Mycotaxon* 51: 91-100.
- Esslinger, T. L. 2000a. *Culbersonia americana*, a rare new lichen (Ascomycota) from western America. *The Bryologist* 103: 771-773.
- Esslinger, T. L. 2000b. A key for the lichen genus *Physconia* in California, with descriptions for three new species occurring within the state. *Bulletin of the California Lichen Society* 7: 1-6.
- Esslinger, T. L. 2002a. *Anaptychia*, pp. 95-97. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Esslinger, T. L. 2002b. *Culbersonia*, pp. 164-165. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Esslinger, T. L. 2002c. *Melanelia*, pp. 274-286. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Esslinger, T. L. 2002d. *Physconia*, pp. 373-383. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Esslinger, T. L. 2003. *Tuckermanella*, a new cetrarioid genus in western North America. *Mycotaxon* 85: 135-141.
- Esslinger, T. L. 2004a. A new North American species in the lichen genus *Physcia* (Ascomycota) with a unique thallus morphology. *Mycotaxon* 90: 301-306.
- Esslinger, T. L. 2004b. *Phaeophyscia*, pp. 403-414. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Esslinger, T. L. 2007. A synopsis of the North American species of *Anaptychia* (Physciaceae). *The Bryologist* 110: 788-797.
- Esslinger, T. L. 2016. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada, Version 21. *Opuscula Philolichenum* 15: 136-390. [Online at: : <http://www.ndsu.edu/pubweb/~esslinge/chcklst/chcklst7.htm>]
- Esslinger, T. L. 2017. A new circumscription for the common and widespread North American species *Physcia subtilis*, and description of a new species, *P. thomsoniana*. *Opuscula Philolichenum* 16: 139-152.
- Esslinger, T. L. & C. Bratt. 1998. The *Heterodermia erinacea* group in North America, and a remarkable new disjunct distribution, pp. 25-36. In M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.
- Esslinger, T. L. & K. L. Dillman. 2010. *Physconia grumosa* in North America. *The Bryologist* 113: 77-80.
- Esslinger, T. L. & R. S. Egan. 1995. A sixth checklist of the lichen-forming, lichenicolous, and allied fungi of the continental United States and Canada. *The Bryologist* 98: 467-549.

- Esslinger, T. L. & R. S. Egan. 1996. A new species of the lichen genus *Physcia* (lichen-forming Ascomycota) from Texas. *The Bryologist* 99: 331-334.
- Esslinger, T. L., B. McCune & D. L. Haughland. 2017. *Physconia labrata*, a new species from western North America and Asia. *The Bryologist* 120(4): 427-434.
- Esslinger, T. L., C. A. Morse & S. D. Leavitt. 2012. A new North American species of *Hyperphyscia* (Physciaceae). *Bryologist* 115(1): 31-41.
- Esslinger, T. L. & S. Tucker. 2009. Names appearing in Fink's 'Lichen Flora of the United States' which remain unresolved in the current United States/Canada checklist. *Evansia* 26: 177-192.
- Etayo, J. 1998. Aportación a la flora líquénica de las Islas Canarias. iv. Líquenes epifitos de La Gomera (Islas Canarias). *Tropical Bryology* 14: 85-107.
- Etayo, J. 2010. Hongos liquenícolas de Perú: Homenaje a Rolf Santesson. *Bulletin de la Société linnéenne de Provence* 61: 83-128.
- Etayo, J. & A. Aptroot. 2003. *Pyrenula luteopruinosa* sp. nov. from Panama and notes on other members of the genus. *Lichenologist* 35: 233-236.
- Etayo, J. & O. Breuss. 1998. New species and interesting records of lichenicolous fungi. *Österreichische Zeitschrift für Pilzkunde* 7: 203-213.
- Etayo, J. & P. Diederich. 2001. *Gyalideopsis floridae*, sp. nov. a new lichenicolous lichen from Florida (Gomphillaceae, Ascomycetes). *The Bryologist* 104: 130-133.
- Etayo, J., J. Kocourková & K. Knudsen. 2007. New records of lichenicolous fungi for California. *Bulletin of the California Lichen Society* 14: 37-39.
- Etayo, J. & D. Triebel. 2010. New and interesting lichenicolous fungi at the Botanische Staatssammlung München. *Lichenologist* 42: 227-229.
- Evans, A.W. 1950. Notes on the *Cladoniae* of Connecticut-IV. *Rhodora* 52(617): 77-123.
- Eyderdam, W. J. 1960. Lichens new to the state of Washington. *The Bryologist* 63: 107-110.
- Ferraro, L. I., R. Lücking & E. Sérusiaux. 2001. A world monograph of the lichen genus *Gyalectidium* (Gomphillaceae). *Botanical Journal of the Linnean Society* 137: 311-345.
- Feuerer, T. 1991. Revision der europäischen Arten der Flechtengattung *Rhizocarpon* mit nichtgelbem Lager und veiltelligen Sporen. *Bibliotheca Lichenologica* 39: 1-218.
- Feuerer, T. & E. Timdal. 2004. *Rhizocarpon*, pp. 456-466. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Fink, B. 1935. *The Lichen Flora of the United States*. Ann Arbor, The University of Michigan Press.
- Flowers, S. 1953-1954. Some lichens of Utah. *Utah Acad. Sci., Arts & Lett. Proc.* 31: 101-105.
- Freebury, C. 2014. Lichens and lichenicolous fungi of Grasslands National Park (Saskatchewan, Canada). *Opuscula Philolichenum* 13: 102-121.
- Frisch, A. 2006. The lichen family Thelotremaaceae in Africa. A revision with special consideration of the taxa from Cameroon and Tanzania. *Bibliotheca Lichenologica* 92: 3-370.
- Frisch, A. & K. Kalb. 2006. A monograph of Thelotremaaceae with a complex structure of the columella. *Bibliotheca Lichenologica* 92: 371-516.
- Frisch, A., Y. Ohmura, D. Ertz & G. Thor. 2015. *Inoderma* and related genera in Arthoniaceae with elevated white pruinose pycnidia or sporodochia. *Lichenologist* 47(4): 233-256.
- Frisch, A., G. Thor, & J. Elix. 2010. *Herpothallon rubroechinatum* (Arthoniaceae), a new species from tropical and subtropical America. *The Bryologist* 113: 144-148.
- Frisch, A., G. Thor, D. Ertz & M. Grube. 2014. The Arthonialean challenge: restructuring Arthoniaceae. *Taxon* 63(4): 727-744.
- Frödén, P. & P. Lassen. 2004. Typification and emendation of *Seiophora* Poelt to include species segregated from *Teloschistes* Norman. *Lichenologist* 36: 289-298.
- Fryday, A. 2000. On *Rhizocarpon obscuratum* (Ach.) Massal., with notes on some related species in the British Isles. *Lichenologist* 32: 207-224.
- Fryday, A. M. 2001. Additions to the lichen flora of North America?? *Agonimia allobata* and *Aspicilia grisea*. *Evansia* 18: 87-89.
- Fryday, A. M. 2002. A revision of the species of the *Rhizocarpon hochstetteri* group occurring in the British Isles. *Lichenologist* 34: 451-477.
- Fryday, A. M. 2004a. A new species of *Fuscopannaria* with a green photobiont, and other taxonomic innovations and new records of lichenized-fungi from Alaska. *The Bryologist* 107: 173-179.
- Fryday, A. M. 2004b. A re-assessment of the genus *Gongylia* in North America, and a new species of *Protothelenella* from Colorado. *The Bryologist* 107: 232-233.
- Fryday, A. M. 2005. The genus *Porpidia* in northern and western Europe, with special emphasis on collections from the British Isles. *Lichenologist* 37: 1-35.
- Fryday, A. M. 2006. New and interesting North American lichen records from the alpine and sub-alpine zones of Mt. Katahdin, Maine. *The Bryologist* 109: 570-578.

- Fryday, A. M. 2008. The genus *Fuscidea* (Fuscideaceae, lichenized Ascomycota) in North America. *Lichenologist* 40: 295-328.
- Fryday, A. M. 2010. A brief lichen foray in the Mount Washington alpine zone – including *Claurouxia chalybeioides*, *Porina norrlinii* and *Stereocaulon leucophaeopsis* new to North America. *Opuscula Philolichenum* 8: 1-7.
- Fryday, A. M. & B. J. Coppins. 1996. A new crustose *Stereocaulon* from the mountains of Scotland and Wales. *Lichenologist* 28: 513-519.
- Fryday, A. M. & B. J. Coppins. 2004. A reassessment of the genera *Chromatochlamys* and *Thelenella*, and a new species of *Strigula* from the British Isles. *Lichenologist* 36: 89-95.
- Fryday, A. M. & B. J. Coppins. 2007. *Micarea*, pp. 246-250. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited*, Arizona State University, Tempe.
- Fryday, A. M. & B. J. Coppins. 2012. New taxa, reports, and names of lichenized and lichenicolous fungi, mainly from the Scottish Highlands. *Lichenologist* 44: 723-737.
- Fryday, A. M. & K. A. Glew. 2003. *Stereocaulon nivale*, *comb. nov.*, yet another crustose species in the genus. *The Bryologist* 106: 565-568.
- Fryday, A. M. & J. C. Lendemer. 2010. Reassessment of the genus *Catillochroma* (lichenized Ascomycota, Ramalinaceae). *Lichenologist* 42: 587-600.
- Fryday, A. M., J. C. Lendemer & N. M. Howe. 2007. *Porpidia soledizodes* (lichenized ascomycota) in North America. *Opuscula Philolichenum* 4: 1-4.
- Fryday, A. M., C. Printzen & S. Ekman. 2014. *Bryobilimbia*, a new generic name for *Lecidea hypnorum* and closely related species. *Lichenologist* 46(1): 25-37.
- Galloway, D. J. 2005. *Placopsis fusciculoides* (Ascomycota: Agyriaceae), a new lichen from Aotearoa New Zealand, British Columbia, and Bolivia. *Australasian Lichenology* 57: 16-20.
- Galloway, D. J. & J. A. Elix. 2013. Reinstatement of *Crocodia* Link (Lobariaceae: Ascomycota) for five species formerly included in *Pseudocyphellaria* Vain. *Australasian Lichenology* 72: 32-42.
- Galloway, D. J. & M. A. Thomas. 2004. *Sticta*, pp. 513-524. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Gams, W. 2004. Report of the committee for fungi: 11. *Taxon* 53: 1067-1069.
- Gasparyan, A., H. J. M. Sipman & R. Lücking. 2017. *Ramalina europaea* and *R. labiosorediata*, two new species of the *R. pollinaria* group (Ascomycota: Ramalinaceae), and new typifications for *Lichen pollinarius* and *L. squarrosus*. *The Lichenologist* 49(4): 301-319.
- Gaya, E. 2009. Taxonomical revision of the *Caloplaca saxicola* group (Teloschistaceae, lichen-forming Ascomycota). *Bibliotheca Lichenologica* 101: 1-191.
- Gerlach, A. da C. L., P. Clerc, R. M. Borges da Silveira. 2017. Taxonomy of the corticolous, shrubby, esorediate, neotropical species of *Usnea* Adans. (Parmeliaceae) with an emphasis on southern Brazil. *Lichenologist* 49(3): 199-238.
- Giralt, M., G. Paz-Bermúdez, J. A. Elix. 2009. New data on *Sculptolumina japonica* (Physciaceae). *The Bryologist* 112: 397-403.
- Giralt, M., F. Bungartz & J. A. Elix. 2011. The identity of *Buellia sequax*. *Mycological Progress* 10(1): 115-119.
- Giralt, M., P. P. G. van den Boom & J. A. Elix. 2010. *Endohyalina*, the genus in the Physciaceae to accommodate the species of the *Rinodina ericina*-group. *Mycological Progress* 9(1): 37-48.
- Glavich, D. A. & L. H. Geiser. 2004. *Dermatocarpon meiophyllizum* Vainio in the US Pacific Northwest. *Evansia* 21: 137-140.
- Glew, K. A. 1999. *Rinodina aspersa* (Borrer) Laundon new to North America. *Evansia* 16: 168-169.
- Goffinet, B. & T. Goward. 1998. Is *Nephroma silvae-veteris* the cyanomorph of *Lobaria oregana*? Insights from molecular, chemical and morphological characters, pp. 41-52. In M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.
- Goffinet, B. & R. I. Hastings. 1995. Two new solediate taxa of *Peltigera*. *Lichenologist* 27: 43-58.
- Goffinet, B. & J. Miadlikowska. 1999. *Peltigera phyllidiosa* (Peltigeraceae, Ascomycotina), a new species from the southern Appalachians corroborated by ITS sequences. *Lichenologist* 31: 247-256.
- Goffinet, B., J. Miadlikowska & T. Goward. 2003. Phylogenetic inferences based on nrDNA sequences support five morphospecies within the *Peltigera didactyla* complex (lichenized Ascomycota). *The Bryologist* 106: 349-364.
- Goward, T., T. Ahti, J. A. Elix, & Toby Spribille. 2010. *Hypogymnia recurva* and *Hypogymnia wilfiana* spp. nov., two new lichens from western North America. *Botany* 88: 345-351.
- Goward, T., O. Breuss, B. Ryan, B. McCune, H. Sipman & C. Scheidegger. 1996. Notes on the lichens and allied fungi of British Columbia. III. *The Bryologist* 99: 439-449.
- Goward, T. & B. Goffinet. 2000. *Peltigera chionophila*, a new lichen (Ascomycetes) from the Western Cordillera of North America. *The Bryologist* 103: 493-498.
- Goward, T. & B. McCune. 2007. *Hypogymnia canadensis* (Parmeliaceae), a new lichen from the Pacific Coast of North America. *The Bryologist* 110: 808-811.

- Goward, T., T. Spribille, T. Ahti & C. J. Hampton-Miller 2012. Four new sorediate species in the *Hypogymnia austerodes* group (lichens) from northwestern North America, with notes on thallus morphology. *Bryologist* 115(1): 84-100.
- Groner, U. & M. Dietrich. 1996. *Hypotrachyna taylorensis* (Parmeliaceae) a European species in the New World. *The Bryologist* 99: 457-459.
- Grube, M. 2001. *Sporostigma*, a new calicioid genus in Arthoniales. *Lichenologist* 33: 387-391.
- Grube, M. 2007. *Arthonia*, pp. 39-61. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Grube, M. & J. C. Lendemer. 2009. *Arthonia rubrocincta*: belated validation of a name for a common species endemic to *Sabal palmetto* in the southeastern United States. *Opuscula Philolichenum* 7: 7-12.
- Grube, M. & B. D. Ryan. 2002. *Collemopsidium*, pp. 162-164. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Gueidan, C., A. Aptroot, M. E. S. Cáceres & N. Q. Binh 2016. Molecular phylogeny of the tropical lichen family Pyrenulaceae: contribution from dried herbarium specimens and FTA card samples. *Mycological Progress* 15(1): 1-21.
- Gueidan, C. & J. C. Lendemer. 2015. Molecular data confirm morphological and ecological plasticity within the North American endemic *Willeya diffractella* (Verrucariaceae). *Systematic Botany* 40(2): 369-375.
- Gueidan, C., C. Roux & F. Lutzoni. 2007. Using a multigene phylogenetic analysis to assess generic delineation and character evolution in *Verrucaria* (Verrucariales, Ascomycota). *Mycological Research* 111(10): 1145-1168.
- Gueidan, C., S. Savić, H. Thüs et al. 2009. Generic classification of the Verrucariaceae (Ascomycota) based on molecular and morphological evidence: recent progress and remaining challenges. *Taxon* 58: 184-208.
- Gueidan, C., H. Thüs & S. Pérez-Ortega. 2011. Phylogenetic position of the brown algae-associated lichenized fungus *Verrucaria tavaresiae* (Verrucariaceae). *The Bryologist* 114(3): 563-569.
- Gyelnik, V. 1931. Additamenta ad cognitionem lichenum extraeuropaeorum. *Annales de Cryptogamie Exotique* 4: 166-174.
- Hafellner, J. 1995. Über *Piccolia*, eine lichenisierte Pilzgattung der Tropen (Ascomycotina, Lecanorales). *Bibliotheca Lichenologica* 58: 107-122.
- Hafellner, J. 1997. A world monograph of *Brigantiaea* (lichenized Ascomycotina, Lecanorales), pp. 35-74. In L. Tibell & I. Hedberg (eds.), *Lichen Studies Dedicated to Rolf Santesson*. *Symbolae Botanicae Upsalienses* 32. Acta Universitatis Upsaliensis, Uppsala.
- Hafellner, J. 1999. Beiträge zu einem Prodrömus der lichenicolen pilze Österreichs und angrenzender Gebiete. IV. Drei neue Arten und weitere bemerkenswerte Funde hauptsächlich in der Steiermark [Contributions to a prodromus of the lichenicolous fungi of Austria and neighbouring areas. IV. Three new species and further remarkable records mainly from Styria]. *Linzer Biologische Beiträge* 31: 507-532.
- Hafellner, J. 2000. Zur Biodiversität lichenisierter und lichenicoler Pilze in den Eisenerzer Alpen (Steiermark) [Biodiversity of lichenized and lichenicolous fungi in the Eisenerzer Alpen (Styria)]. *Mitteilungen der Naturwissenschaftlichen Vereines für Steiermark* 130: 71-106.
- Hafellner, J. 2001. Studies in lichenicolous fungi and lichens XII: on the genus *Trematosphaeriopsis* (Dothideales). *Mycotaxon* 80: 381-387.
- Hafellner, J. 2004a. *Buelliella*, pp. 633-635. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Hafellner, J. 2004b. A further evolutionary lineage to lichenicolous growth in Physciaceae (Lecanorales), pp. 175-186. In P. Döbberle & G. Rambold (eds.), *Contributions to Lichenology*. *Festschrift in Honour of Hannes Hertel*. *Bibliotheca Lichenologica* 88. J. Cramer in der Gebrüder Borntraeger, Berlin, Stuttgart.
- Hafellner, J. 2004c. Notes on *Scoliciosporum intrusum*. *Fritschiana* 49: 29-41.
- Hafellner, J. 2004d. A revision of *Maronella laricina* and *Piccolia ochrophora*. *Symbolae Botanicae Upsalienses* 34: 87-96.
- Hafellner, J. 2004e. *Roselliniopsis*, pp. 688-689. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Hafellner, J. 2009. *Phacothecium* resurrected and the new genus *Phacographa* (Arthoniales) proposed. *Bibliotheca Lichenologica* 100: 85-121.
- Hafellner, J. 2010. Contributions to a revision of lichenized, phaeospored species of *Polyblastia* coll., mainly in the Central European mountains. *Bibliotheca Lichenologica* 104: 117-141.
- Hafellner, J. & V. Calatayud. 1999. *Lichenostigma cosmopolites*, a common lichenicolous fungus on *Xanthoparmelia* species. *Mycotaxon* 72: 107-114.
- Hafellner, J., G. Herzog & H. Mayrhofer. 2008. Zur Diversität von lichenisierten und lichenicolen Pilzen in den Ennstaler Alpen (Österreich: Steiermark, Oberösterreich). *Mitteilungen der Naturwissenschaftlichen Vereines für Steiermark* 137: 131-204.

- Hafellner, J. & T. Spribille. 2016. *Tingiopsidium* – the correct name for *Vestergrenopsis* as currently delimited (Peltigerales, Koerberiaceae). *Fritschiana* 83: 47-50.
- Hafellner, J., D. Triebel, B. D. Ryan & T. H. Nash III. 2002. On lichenicolous fungi from North America. II. *Mycotaxon* 84: 293-329.
- Hafellner, J. & R. Türk. 1995. Über Funde lichenicoler Pilze und Flechten im Nationalpark Hohe Tauern (Kärntner Anteil, Österreich). *Carinthia* II 185/105: 599-635.
- Hafellner, J. & R. Türk. 2001. Die lichenisierten Pilze Österreichs - eine Checkliste der bisher nachgewiesenen Arten mit verbreitungsangaben. *Stapfia* 76: 1-167.
- Hafellner, J. & R. Türk. 2016. Die lichenisierten Pilze Österreichs - eine neue Checkliste der bisher nachgewiesenen Taxa mit Angaben zu Verbreitung und Substratökologie. *Stapfia* 104(1): 1-216.
- Halda, J. 2003. A taxonomic study of the calcicolous endolithic species of the genus *Verrucaria* (Ascomycotina, Verrucariales) with the lid-like and radiately opening involucrellum. *Acta Musei Richnoviensis, Sect. Natur.* 10: 1-148.
- Hale, B. W. & P. T. DePriest. 1999. Mason E. Hale's list of epithets in the parmelioid genera. *The Bryologist* 102: 462-544.
- Hale, M. E., Jr. 1979. How to Know the Lichens. 2nd. Edition. Wm. C. Brown Co., Dubuque. 246 pages.
- Hale, M. E., Jr. & W. L. Culberson. 1956. A checklist of the lichens of the United States, Canada, and Alaska. *Castanea* 21: 73-105.
- Halonen, P. 2000. *Usnea pacificana*, sp. nov. and *U. wasmuthii* (lichenized Ascomycetes) in Pacific North America. *The Bryologist* 103: 38-43.
- Halonen, P., P. Clerc, T. Goward, I. M. Brodo & K. Wulff. 1998. Synopsis of the genus *Usnea* (lichenized Ascomycetes) in British Columbia, Canada. *The Bryologist* 101: 36-60.
- Halonen, P., L. Myllys, S. Velmala & H. Hyvärinen. 2009. *Gowardia* (Parmeliaceae) — a new alectoroid lichen genus with two species. *The Bryologist* 112(1): 138-146.
- Hambleton, J. C. 1910. A list of the lichens of Ohio. *Ohio Naturalist* 10: 41-43.
- Hammer, S. 2001. A new *Cladonia* from California. *The Bryologist* 104: 226-229.
- Hansen, C. J. [& J. D. Freeman.] 2003. A catalog and brief history of the lichen flora of Alabama. *Evansia* 20: 59-101. [The second author should be deleted as a typographical error]
- Hansen, C. J. & R. R. Dute. 2005. Additions to the lichen flora of Alabama I. *Evansia* 22(3): 110-117.
- Hansen, C. J., J. C. Lendemer & S. Q. Beeching. 2008. Contributions to the lichen flora of Alabama: recent collections from four counties. *Opuscula Philolichenum* 5: 43-48.
- Hansen, E. S. 2006. Notes on some new and interesting Greenland lichens IX. *Graphis Scripta* 18(1): 1-5.
- Hansen, E. S. & T. Ahti 2011. A contribution to the lichen genus *Cladonia* in Greenland and new records from other northern regions. *Graphis Scripta* 23(2): 56-64.
- Hansen, E. S. & V. Alstrup. 1995. The lichenicolous fungi on *Cladonia* subgenus *Cladina* in Greenland. *Graphis Scripta* 7: 33-38.
- Harada, H. 1999. *Sulcopyrenula*, a new pyrenocarpous lichen genus (Pyrenulaceae, lichenized Ascomycota). *Lichenologist* 31: 567-573.
- Harada, H. 2003. *Psoroglaena japonica* (lichenized Ascomycota, Verrucariaceae), a new species from Chiba-ken, central Japan, with notes on *Psoroglaena*. *Lichenology* 2: 5-10.
- Hardman, A., D. Stone & S. B. Selva. 2017. Calicioid lichens and fungi of the Gifford Pinchot and Okanogan-Wenatchee National Forests in Washington. *Opuscula Philolichenum* 16: 1-14.
- Harris, R. C. 1977. Lichens of the Straits Counties, Michigan. Publ. by the author, 150 pages.
- Harris, R. C. 1995a. More Florida Lichens. Including the 10¢ Tour of the Pyrenolichens. Publ. by the Author, Bronx, N.Y. 192 pages.
- Harris, R. C. 1995b. New or rare lichens/lichenicolous fungi for North America. *Evansia* 12: 4.
- Harris, R. C. 1997. Reinstatement of *Lecidea cyrtidia* Tuck. in the North American lichen checklist. *Evansia* 14: 69-73.
- Harris, R. C. 1998. A preliminary revision of *Pseudopyrenula* Müll. Arg. (lichenized Ascomycetes, Trypetheliaceae) with a redistribution of the names previously assigned to the genus, pp. 133-148. In M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.
- Harris, R. C. 2004. A preliminary list of the lichens of New York. *Opuscula Philolichenum* 1: 55-73.
- Harris, R. C. 2005. Some name changes in *Porina* s. lat. *Opuscula Philolichenum* 2: 15-16.
- Harris, R. C. 2006a. Lichens of Limestone Rise Preserve, Albany County, New York. *Evansia* 23(3): 53-55.
- Harris, R. C. 2006b. A preliminary glance at *Maronea* (Fuscideaceae) in North America. *Opuscula Philolichenum* 3: 65-68.
- Harris, R. C. 2009. Four novel lichen taxa in the lichen biota of eastern North America. *Opuscula Philolichenum* 6: 149-155.
- Harris, R. C., I. M. Brodo & T. Tønsberg. 2000. *Lecanora thysanophora*, a common leprose lichen in North America. *The Bryologist* 103: 790-793.
- Harris, R. C. & K. Knudsen. 2006. The genus *Myriospora*. *Opuscula Philolichenum* 3: 1-4.

- Harris, R. C. & D. Ladd. 2005. Preliminary draft: Ozark lichens; Enumerating the lichens of the Ozark Highlands of Arkansas, Kansas, Illinois, Missouri, and Oklahoma: Prepared for the 14th Tuckerman Lichen Workshop, Eureka Springs, Arkansas. 249 pp.: http://sweetgum.nybg.org/ozarklichens/biblio_detail.php?irn=132967
- Harris, R. C. & D. Ladd. 2007. New taxa of lichens and lichenicolous fungi from the Ozark Ecoregion. *Opuscula Philolichenum* 4: 57-68.
- Harris, R. C. & D. Ladd. 2008. The lichen genus *Chrysothrix* in the Ozark ecoregion, including a preliminary treatment for eastern and central North America. *Opuscula Philolichenum* 5: 29-42.
- Harris, R. C. & J. C. Lendemer. 2005. Contributions to the lichen flora of Pennsylvania: a checklist of lichens collected during the first Howard Crum Bryological Workshop, Delaware Water Gap National Recreation Area. *Opuscula Philolichenum* 2: 1-10.
- Harris, R. C. & J. C. Lendemer. 2006. Contributions to the lichen flora of Pennsylvania: additions to the checklist of lichens of the Delaware Water Gap National Recreation Area. *Opuscula Philolichenum* 3: 69-78.
- Harris, R. C. & J. C. Lendemer. 2009. The *Fellhanera silicis* group in eastern North America. *Opuscula Philolichenum* 6: 157-174.
- Harris, R. C. & J. C. Lendemer. 2010. A review of *Lecania croatica* (syn. *Catillaria croatica*) in North America. *Opuscula Philolichenum* 8: 41-49.
- Harris, R. C. & C. A. Morse. 2008. *Monoblastiopsis* (Dothideomycetes, Pleosporales, incertae sedis), a new genus from the Great Plains and Ozark Highlands. *Opuscula Philolichenum* 5: 89-96.
- Harris, R. C., E. A. Tripp & J. C. Lendemer. 2014. *Arthopyrenia betulicola* (Arthopyreniaceae, Dothidiomycetes), an unusual new lichenized fungus from high elevations of the southern Appalachian Mountains. *Aliso* 31(2): 77-81.
- Haugan, R. & E. Timdal. 1994. *Tephromela perlata* and *T. talayana*, with notes on the *T. aglaea*-complex. *Graphis Scripta* 6: 17-26.
- Hawksworth, D. L. 1981. The lichenicolous Coelomycetes. *Bulletin of the British Museum (Natural History), Botany* 9: 1-98.
- Hawksworth, D. L. 1986. Notes on British lichenicolous fungi: V. Notes from the Royal Botanic Garden Edinburgh 43: 497-519.
- Hawksworth, D. L. 2003. The lichenicolous fungi of Great Britain and Ireland: an overview and annotated checklist. *Lichenologist* 35: 191-232.
- Hawksworth, D. L. 2004. Rediscovery of the original material of Osbeck's *Lichen chinensis* and the re-instatement of the name *Parmotrema perlatum* (Parmeliaceae). *Herzogia* 17: 37-44.
- Hawksworth, D. L., V. Atienza & M. S. Cole. 2004. Lichenicolous species of *Homostegia* (Dothideomycetes), with the description of *H. hertelii* sp. nov., a new fungus on *Flavoparmelia* species. *Bibliotheca Lichenologica* 88: 187-194.
- Hawksworth, D. L. & M. S. Cole. 2002. *Intralichen* a new genus for lichenicolous '*Bispora*' and '*Trimmatostroma*' species. *Fungal Diversity* 11: 87-97.
- Hawksworth, D. L. & M. S. Cole. 2004. *Phoma fuliginosa* sp. nov., from *Caloplaca trachyphylla* in Nebraska, with a key to the known lichenicolous species. *Lichenologist* 36: 7-13.
- Hawksworth, D. L. & H. Henrici. 2015. New resting places for *Laeticorticium quercinum* and *Marchandiobasidium aurantiacum*. *Field Mycology* 16(1): 16-17.
- Heidmarsson, S. 2003. Molecular study of *Dermatocarpon miniatum* (Verrucariales) and allied taxa. *Mycological Research* 107: 459-468.
- Heidmarsson, S. & O. Breuss. 2004. *Dermatocarpon*, pp. 88-93. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Heidmarsson, S. 2017. *Dermatocarpon*, pp. 19-25. In R. Moberg, S. Tibell & L. Tibell (eds.), *Nordic Lichen Flora*, Vol. 6, Verrucariaceae 1. Museum of Evolution, Uppsala University on behalf of Nordic Lichen Society.
- Heiman, K. & J. A. Elix. 1999. A new species of *Canoparmelia* from North America (lichenized Ascomycotina, Parmeliaceae). *Mycotaxon* 70: 163-166.
- Henssen, A. 1995. Studies on the biology and structure of *Dacampia* (Dothideales), a genus with lichenized and lichenicolous species. *Cryptogamic Botany* 5: 149-158.
- Henssen, A. 1997. *Santessoniella*, a new cyanophilic genus of lichenized ascomycetes, pp. 75-93. In L. Tibell & I. Hedberg (eds.), *Lichen Studies Dedicated to Rolf Santesson*. *Symbolae Botanicae Upsalienses* 32. Acta Universitatis Upsaliensis, Uppsala.
- Henssen, A. & P. M. Jorgensen. 1990. New combinations and synonyms in the Lichinaceae. *Lichenologist* 22: 137-147.
- Henssen, A. & T. Tønsberg. 2000. *Spilonemella*, a new genus of cyanophilic lichens with species from North America and Japan (Coccocarpiaceae). *The Bryologist* 103: 108-116.
- Hertel, H. 1991. *Lecidea* in der Arktis III (Icideoide Flechten; Lecanorales). *Mitteilungen der Botanischen Staatssammlung München* 30: 297-333.
- Hertel, H. 1995. Schlüssel für die Arten der Flechtenfamilie Lecideaceae in Europa. *Bibliotheca Lichenologica* 58: 137-180.

- Hertel, H. 2004. *Adelolecia*, pp. 17-18. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Hertel, H. & M. P. Andreev. 2003. On some saxicolous lecideoid lichens of the Beringian Region and adjacent areas of eastern Siberia and the Russian Far East. *The Bryologist* 106: 539-551.
- Hertel, H. & C. Leuckert. 2011. On the *Lecidea atrobrunnea*-complex (Lecanorales, Lecideaceae) in the Americas. 2. The Distribution of the taxa occurring in North America south of the 55th parallel. *Bibliotheca Lichenologica* 106: 95-113.
- Hertel, H. & C. Printzen. 2004. *Lecidea*, pp. 287-309. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Hertel, H. & G. Rambold. 1987. *Miriquidica* genus novum Lecanoracearum (Ascomycetes lichenisati). *Mitteilungen der Botanischen Staatssammlung München* 23: 377-392.
- Heuchert, B & U. Braun. 2006. On some dematiaceous lichenicolous hyphomycetes. *Herzogia* 19: 11-21.
- Hinds, J. W. & P. L. Hinds. 1998. An annotated checklist of Maine macrolichens, pp. 345-376. In M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.
- Hinds, J. W., A. M. Fryday & A. C. Dibble. 2002. Three additions to the lichen flora of North America from Mt. Katahdin, Maine. *Evansia* 19: 137-141.
- Hodkinson, B. P. 2010. A first assessment of lichen diversity in one of North America's 'biodiversity hotspots' in the mountains of Virginia. *Castanea* 75: 126-133.
- Hodkinson, B. P., R. C. Harris & M. A. Case. 2009. A checklist of Virginia lichens. *Evansia* 26: 64-88.
- Hodkinson, B. P. & J. C. Lendemer. 2011. *Punctelia eganii*, a new species in the *P. rudecta* group with a novel secondary compound for the genus. *Opuscula Philolichenum* 9: 35-38.
- Hodkinson, B. P. & J. C. Lendemer. 2012. Phylogeny and taxonomy of an enigmatic sterile lichen. *Systematic Botany* 37(4): 835-844.
- Hodkinson, B. P. & J. C. Lendemer. 2013. Next-generation sequencing reveals sterile crustose lichen phylogeny. *Mycosphere* 4 (6): 1028-1039.
- Hodkinson, B. P., J. C. Lendemer & T. L. Esslinger. 2010. *Parmelia barrenoae*, a macrolichen new to North America and Africa. *North American Fungi* 5: 1-5.
- Hoffmann, N. & J. Hafellner 2000. Eine Revision der lichenicolen Arten der Sammelgattungen *Guignardia* und *Physalospora*. *Bibliotheca Lichenologica* 77: 1-190.
- Holien, H. 1989. The genus *Bryoria* Sect. *Implexae* in Norway. *Lichenologist* 21: 243-258.
- Holien, H. 1994. Additions to the Norwegian flora of lichens and lichenicolous fungi. *Graphis scripta* 6: 39-43.
- Holien, H., Z. Palice, C. R. Björk, T. Goward & T. Spribille. 2016. *Lecidea coriacea* sp. nov., a lichen species from oldgrowth boreal and montane forests in Europe and North America. *Herzogia* 29(2): 412-420.
- Holien, H. & T. Tønsberg. 2002. Two new species in the lichen genus *Szczawinskia* A. Funk. *Lichenologist* 34: 369-372.
- Holien, H. & T. Tønsberg. 2008. *Xylographa soralifera*, a new species in the *X. vitiligo* complex. *Graphis Scripta* 20(2): 58-63.
- Holtan-Hartwig, J. 2005. *Peltigera latiloba*, a new lichen species from Norway and USA (Alaska). *Graphis Scripta* 17: 34.
- Huhtinen, S., D. L. Hawksworth & P. G. Ihlen. 2008. Observations on two glassy-haired lichenicolous discomycetes. *Lichenologist* 40(6): 549-557.
- Hutten, M., U. Arup, O. Breuss, T. L. Esslinger, A. M. Fryday, K. Knudsen, J. C. Lendemer, C. Printzen, H. T. Root, M. Schultz, J. Sheard, T. Tønsberg & B. McCune. 2013. Lichens and lichenicolous fungi of Yosemite National Park, California. *North American Fungi* 8 (11): 1-47.
- Ihlen, P. G. & A. M. Fryday. 2002. *Rhizocarpon timdalii*, a new lichen species from north-west Europe and north-east North America. *Lichenologist* 34: 95-100.
- Ihlen, P. G., H. Holien & T. Tønsberg. 2004a. Two new species of *Dactylospora* (Dactylosporaceae, Lecanorales), with a key to the known species in Scandinavia. *The Bryologist* 107: 357-362.
- Ihlen, P. G., B. Owe-Larsson & T. Tønsberg. 2004b. *Arthonia biatoricola* sp. nov. from north-western Europe and northern Pacific North America. *Symbolae Botanicae Upsalienses* 34: 107-111.
- Ihlen, P. G. & T. Tønsberg. 1996. The lichenicolous genus *Lettauia* in North America. *The Bryologist* 99: 32-33.
- Iturriaga, T. & D. L. Hawksworth. 2004. *Skyttea richardsonii* sp. nov. from Maine, with a key to the species known from North America. *Mycologia* 96: 925-928.
- Jørgensen, P. M. 1997. Further notes on hairy *Leptogium* species, pp. 113-130. In L. Tibell & I. Hedberg (eds.), Lichen Studies Dedicated to Rolf Santesson. *Symbolae Botanicae Upsalienses* 32. Acta Universitatis Upsaliensis, Uppsala.
- Jørgensen, P. M. 2000a. *Moelleropsis nebulosa* ssp. *frullaniae*, a new lichen for Europe. *Cryptogamie, Mycologie* 21: 49-52.

- Jørgensen, P. M. 2000b. On the sorediate counterparts of the lichen *Fuscopannaria leucosticta*. The Bryologist 103: 104-107.
- Jørgensen, P. M. 2000c. Survey of the lichen family Pannariaceae on the American continent, north of Mexico. The Bryologist 103: 670-704.
- Jørgensen, P. M. 2002. *Moelleropsis*, pp. 286-287. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Jørgensen, P. M. 2004. A new North American species of the lichen genus *Staurolemma* (Collemataceae). The Bryologist 107: 392-394.
- Jørgensen, P. M. 2005. Additions to the Pannariaceae of North America. The Bryologist 108: 255-258.
- Jørgensen, P. M. 2006. *Leptochidium crenatum*, a misunderstood arctic-alpine lichen. Graphis Scripta 18(1): 19-22.
- Jørgensen, P. M. 2008. *Vahliella*, a new lichen genus. Lichenologist 40: 221-225.
- Jørgensen, P. M. 2014. Taxonomy and nomenclature of *Collema fasciculare* (L.) G. H. Weber. Lichenologist 46(4): 594.
- Jørgensen, P. M. & T. Goward. 2015. Notes on the *Collema tenax* complex, with recognition of two further species in the genus *Enchylium* (Ach.) Gray. Evansia 32(1): 42-47.
- Jørgensen, P. M. & T. H. Nash III. 2004. *Leptogium*, pp. 330-350. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Jørgensen, P. M. & T. Tønsberg. 1999. Notes on some small species of *Leptogium* from Pacific North America. The Bryologist 102: 412-417.
- Jørgensen, P. M. & T. Tønsberg. 2005. *Leioderma cherokeense* (Pannariaceae, Lecanorales) *sp. nov.* from the Great Smoky Mountains, North Carolina, U.S.A. The Bryologist 108: 412-414.
- Jørgensen, P. M. & T. Tønsberg. 2010. *Leptogium insigne*, a new species from the Pacific Northwest of North America. Bibliotheca Lichenologica 104: 241-246.
- Jørgensen, P. M. & M. Zhurbenko. 2002. Two new, remarkable, arctic species in the lichen genus *Fuscopannaria* (Pannariaceae, lichenized Ascomycetes). The Bryologist 105: 465-469.
- Kalb, K. 1990. Lichenes Neotropici ausgegeben von Klaus Kalb. Fascikel XI (No. 451-475). Neumarkt/OPf. 12 pages.
- Kalb, K. 1994. *Frutidella*, eine neue Flechtengattung für *Lecidea caesioatra* Schaerer. Hoppea 55: 581-586.
- Kalb, K. 2001. The lichen genus *Topeliopsis* in Australia and remarks on Australian Thelotremales. Mycotaxon 79: 319-328.
- Kalb, K. 2004a. *Dirinaria*, pp. 98-103. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Kalb, K. 2004b. New or otherwise interesting lichens II. Bibliotheca Lichenologica 88: 301-329.
- Kalb, K. 2007. New or otherwise interesting lichens. III. Bibliotheca Lichenologica 95: 297-316.
- Kalb, K. & M. Giralt. 2011. *Orcularia*, a segregate from the lichen genera *Buellia* and *Rinodina* (Lecanoromycetes, Caliciaceae). Phytotaxa 38: 53-60.
- Kalb, K., J. Hafellner & B. Staiger 1995. *Haematomma*-studien. II. Lichenicole Pilze auf Arten der Flechtengattung *Haematomma*. Bibliotheca Lichenologica 59: 199-222.
- Kalb, K., B. Staiger & J. A. Elix. 2004. A monograph of the lichen genus *Diorygma* - a first attempt. Symbolae Botanicae Upsalienses 34: 133-181.
- Kalb, K., B. Staiger, J.A. Elix, U. Lange, H. T. Lumbsch. 2008. A new circumscription of the genus *Ramboldia* (Lecanoraceae, Ascomycota) based on morphological and molecular evidence. Nova Hedwigia 86: 23-42.
- Kaminsky, B, R. Rosentreter & A. DeBolt. 2013. Ecology and distribution of *Coccocarpia filiformis* and other new and uncommon Florida lichens. Evansia 30(3): 79-89.
- Kantvilas, G. 2002. Studies on the lichen genus *Siphula* Fr. Bibliotheca Lichenologica 82: 37-53.
- Kantvilas, G. 2009. The genus *Mycoblastus* in the cool temperate Southern Hemisphere, with special reference to Tasmania. Lichenologist 41: 151-178.
- Kantvilas, G. & J. A. Elix. 2007. The genus *Ramboldia* (Lecanoraceae): a new species, key and notes. Lichenologist 39: 135-141.
- Kantvilas, G. & A. Vězda. 2000. Studies on the lichen family Thelotremales in Tasmania. The genus *Chroodiscus* and its relatives. Lichenologist 32: 325-357.
- Kärnefelt, I. & A. Thell. 1996. A new classification for the *Dactylina/Dufourea* complex. Nova Hedwigia 62: 487-511.
- Kasalicky, T. 2004. *Fulgensia*, pp. 114-116. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Kashiwadani, H. & T. H. Nash III. 2004. *Ramalina*, pp. 440-455. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Ketzner, D. M. 2010. An Evaluation of the Nomenclatural Status of *Biatorella kulshanensis* Herre. Evansia 27: 92-93.

- Kitaura, M. J., M. P. Marcelli, B. R. da Hora & P. Jungbluth. 2015. *Leptogium denticulatum* (Collembataceae, lichenized Ascomycota) and some morphologically related species. *The Bryologist* 118(1): 11-21.
- Kivistö, L. 1998. Taxonomy of *Stereocaulon paschale* and allied species in Finland [Zur Taxonomie von *Stereocaulon paschale* und den benachbarten Arten in Finland]. *Sauteria* 9: 25-36.
- Knoph, J. G. & C. Leuckert. 1994. Chemotaxonomic studies in the saxicolous species of the lichen genus *Lecidella* (Lecanorales, Lecanoraceae) in America. *Nova Hedwigia* 59: 455-508.
- Knoph, J.-G. & C. Leuckert. 2004. *Lecidella*, pp. 309-320. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Knoph, J. G., G. Rambold, D. Triebel & C. Kainz. 2004. *Carbonea*, pp. 54-55. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Knudsen, K. 2003. Type specimens: investigations and observations. *Bulletin of the California Lichen Society* 10: 36-38.
- Knudsen, K. 2004a. A preliminary study of *Acarospora smaragdula* var. *lesdainii* in California. *Opuscula Philolichenum* 1: 21-24.
- Knudsen, K. 2004b. A study of *Acarosporas* in the lichen flora of the Santa Cruz Peninsula by A. W. C. T. Herre. *Bulletin of the California Lichen Society* 11: 10-15.
- Knudsen, K. 2005a. *Acarospora epihutescens* rediscovered. *Opuscula Philolichenum* 2: 11-13.
- Knudsen, K. 2005b. Lichens of the Santa Monica Mountains, Part One. *Opuscula Philolichenum* 2: 27-36.
- Knudsen, K. 2005c. *Polysporina lapponica* in Southern California. *Opuscula Philolichenum* 2: 17-19.
- Knudsen, K. 2007a. *Acarospora*, pp. 1-38. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Knudsen, K. 2007b. *Acarospora smaragdula* in North America. *Evansia* 24: 94-97.
- Knudsen, K. 2007c. An annotated checklist of the lichens of the Santa Monica Mountains, pp. 35-62, In D. A. Knapp, *Flora and Ecology of the Santa Monica Mountains*. Fullerton, Calif., Southern California Botanists.
- Knudsen, K. 2007d. *Polysporina*, pp. 276-278. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Knudsen, K. 2009. *Caloplaca obamae*, a new species from Santa Rosa Island, California. *Opuscula Philolichenum* 6: 37-40.
- Knudsen, K. 2010. *Acarospora orcuttii* (Acarosporaceae), a rare terricolous lichen from southern California. *The Bryologist* 113: 713-716.
- Knudsen, K. 2011a. *Acarospora nashii*, a lichenicolous lichen from western North America. *Bibliotheca Lichenologica* 106: 169-172.
- Knudsen, K. 2011b. A new member of the genus *Silobia* (Acarosporaceae) from North America. *Opuscula Philolichenum* 9: 27-30.
- Knudsen, K. 2011c. A preliminary study of *Pleopsidium stenosporum* (Stizenb. ex Hasse) K. Knudsen. *Opuscula Philolichenum* 9: 77-83.
- Knudsen, K. 2012. Notes on the California lichen flora #4. *Bulletin of the California Lichen Society* 19(1): 4-7.
- Knudsen, K., O. Breuss & J. Kocourková. 2014a. A new lichenicolous *Heteropladidium* (Verrucariaceae) from the deserts of southern California. *Opuscula Philolichenum* 13: 26-33.
- Knudsen, K. & J. A. Elix. 2007a. *Lepraria*, pp. 384-388. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Knudsen, K. & J. A. Elix. 2007b. A new *Lepraria* (Stereocaulaceae) from the Santa Monica Mountains in southern California. *The Bryologist* 110: 115-118.
- Knudsen, K., J. A. Elix & J. C. Lendemer. 2007. *Lepraria adhaerens*: a new species from North America. *Opuscula Philolichenum* 4: 5-10.
- Knudsen, K., J. A. Elix & V. Reeb. 2008a. A preliminary study of the genera *Acarospora* and *Pleopsidium* in South America. *Opuscula Philolichenum* 5: 1-22.
- Knudsen, K. & A. Flakus. 2016. The identity of *Acarospora xanthophana* (Fungi: Ascomycota) and a description of *A. congregate* sp. nov. to accommodate a widely distributed saxicolous species occurring in the higher elevations of South America. *Taxon* 65(1): 146-151.
- Knudsen, K. & J. Kocourková. 2008a. A study of lichenicolous species of *Polysporina* (Acarosporaceae). *Mycotaxon* 105: 149-164.
- Knudsen, K. & J. Kocourková. 2008b. New records of lichen and lichenicolous fungi from California. *Crossosoma* 34: 37-39.
- Knudsen, K. & J. Kocourková. 2009a. Lichens and lichenicolous fungi of the northwestern Santa Ana Mountains. *Crossosoma* 35: 66-81.
- Knudsen, K. & J. Kocourková. 2009b. Lichens, lichenicolous and allied fungi of the Santa Monica Mountains, Part 4: additions and corrections to the annotated list. *Opuscula Philolichenum* 7: 29-48.
- Knudsen, K. & J. Kocourková. 2009c. A taxonomic study of *Polysporina gyrocarpa* and *P. cyclocarpa* (Acarosporaceae) and a new record from Asia of *P. arenacea*. *Bibliotheca Lichenologica* 100: 199-206.

- Knudsen, K. & J. Kocourková. 2010a. Lichenological notes 1. Acarosporaceae. Mycotaxon 112: 361-366.
- Knudsen, K. & J. Kocourková. 2010b. Lichens, Lichenicolous and Allied Fungi of the Santa Monica Mountains, Part 5: Additions and Corrections to the Annotated Checklist. Opuscula Philolichenum 8: 83-100.
- Knudsen, K. & J. Kocourková. 2010c. Lichens and lichenicolous fungi of West Anacapa Island Channel Islands National Park. Crossosoma 36(2): 32-49.
- Knudsen, K. & J. Kocourková. 2010d. A new *Lichenostigma* species (Genus incertae sedis) from Southern California. Bryologist 113: 229-234.
- Knudsen, K. & J. Kocourková. 2010e. New records of lichens and lichenicolous fungi for California II. Crossosoma 36(2): 57-61.
- Knudsen, K. & J. Kocourková. 2010f. A new species of *Stigmidium* from corticolous *Caloplaca* in southern California (USA) and Baja California (Mexico). Bibliotheca Lichenologica 105: 25-31.
- Knudsen, K. & J. Kocourková. 2010g. *Pyrenidium aggregatum*, a new species from North America. Opuscula Philolichenum 8: 71-74.
- Knudsen, K. & J. Kocourková. 2011. Lichenological notes 3: *Sarcogyne plicata* in California. Mycotaxon 118: 423-431.
- Knudsen, K. & J. Kocourková. 2012a. The annotated checklist of lichens, lichenicolous and allied fungi of Channel Islands National Park. Opuscula Philolichenum 11: 145-302.
- Knudsen, K. & J. Kocourková. 2012b. Erratum: *Placidium boccanum* does not occur in North America. Opuscula Philolichenum 11: 303.
- Knudsen, K. & J. Kocourková. 2013. Lichenological notes 6: nomenclatural acts. Mycotaxon 124: 353-356.
- Knudsen, K. & J. Kocourková. 2014a. A new species of *Lecidea* (Lecideaceae, lichenized Ascomycetes) from the mountains of California. Opuscula Philolichenum 13: 80-83.
- Knudsen, K. & J. Kocourková. 2014b. Notes on the California lichen flora 6: new records. Opuscula Philolichenum 13: 4-7.
- Knudsen, K. & J. Kocourková. 2015. A new species of *Acarospora* (Acarosporaceae) from eastern Canada with melanized epihymenial accretions, with additional notes on *A. anatolica* and *Polysporina terricola*. Opuscula Philolichenum 14: 144-147.
- Knudsen, K. & J. Kocourková. 2016. A name misapplied: *Tornabea scutellifera* does not occur in North America. Bulletin of the California Lichen Society 23(2): 14-17.
- Knudsen, K. & J. Kocourková. 2017. *Acarospora toensbergii* (Acarosporaceae), a new species from Alaska, U.S.A. Opuscula Philolichenum 16: 317-321.
- Knudsen, K., J. Kocourková & J. Etayo. 2009. A new species of *Sphaerellothecium* (Mycosphaerellaceae) on *Placidium lacinulatum*. Opuscula Philolichenum 6: 41-49.
- Knudsen, K., J. Kocourková & B. McCune. 2013a. *Sarcogyne mitziae* (Acarosporaceae), a new species from biotic soil crusts in western North America. The Bryologist 116(2): 122-126.
- Knudsen, K., J. Kocourková & A. Nordin. 2014b. Conspicuous similarity hides diversity in the *Acarospora badiofusca* group (Acarosporaceae). The Bryologist 117(4): 319-328.
- Knudsen, K., J. Kocourková & M. Westberg. 2013b. The identity of *Sarcogyne hypophaea* (Nyl.) Arnold. Opuscula Philolichenum 12: 23-26.
- Knudsen, K., J. Kocourková, M. Westberg & T. Wheeler. 2016. Two new species of Acarosporaceae from North America with carbonized epihymenial accretions. Lichenologist 48(5): 347-354.
- Knudsen, K., J. Kocourková & T. Wheeler. 2015. *Protoparmelia ryaniana* is a synonym of *Lecanora verrucariicola*, which belongs in the genus *Miriquidica*. Opuscula Philolichenum 14: 139-143.
- Knudsen, K. & T. La Doux. 2005. Lichen flora of the Southwestern Mojave Desert: Key's Ranch, Joshua Tree National Park, San Bernardino County, California, USA. Evansia 22: 103-109.
- Knudsen, K. & T. La Doux. 2006. Lichen flora of the southwestern Mojave Desert: Eureka Peak, Joshua Tree National Park, Riverside and San Bernardino County, California. Evansia 23: 24-27.
- Knudsen, K. & J. C. Lendemer. 2005a. Changes and additions to the checklist of North American lichens - III. Mycotaxon 93: 277-281.
- Knudsen, K. & J. C. Lendemer. 2005b. Changes and additions to the North American lichen flora - IV. Mycotaxon 93: 289-295.
- Knudsen, K. & J. C. Lendemer. 2006. Changes and additions to the North American lichen mycota - V. Mycotaxon 95: 309-313.
- Knudsen, K. & J. C. Lendemer. 2007. Studies in lichens and lichenicolous fungi: notes on some North American taxa. Mycotaxon 101: 81-87.
- Knudsen, K. & J. C. Lendemer. 2009a. *Cladonia maritima*, a new species in the *C. cervicornis* group from western North America. Opuscula Philolichenum 6: 121-124.
- Knudsen, K. & J. C. Lendemer. 2009b. *Naetrocymbe herrei* (Pleosporales: Ascomycetes), a new lichenized saxicolous species from the coast of central California, U.S.A. Opuscula Philolichenum 6: 59-64.
- Knudsen, K. & J. C. Lendemer. 2009c. Two new species of *Lecanora* with gyrophoric acid from North America. Opuscula Philolichenum 7: 21-28.

- Knudsen, K. & J. C. Lendemer. 2016. A new perspective on *Melanophloea*, *Thelocarpella*, and *Trimmatothelopsis*: species previously placed in multiple families are united within a single genus in the Acarosporaceae. *The Bryologist* 119(3): 266-279.
- Knudsen, K., J. C. Lendemer & J. A. Elix. 2011a. *Lecanora peninsularis* (Lecanoraceae, lichenized Ascomycetes), a second new species with gyrophoric acid from California. *Nova Hedwigia* 92: 101-105.
- Knudsen, K., J. C. Lendemer & R. C. Harris 2011b. Studies in lichens and lichenicolous fungi – no. 15: miscellaneous notes on species from eastern North America. *Opuscula Philolichenum* 9:45-75.
- Knudsen, K., J. C. Lendemer & J. Kocourková. 2014c. *Lecanora annularis* (Lecanoraceae, Lecanorales), a new lichen species from the Channel Islands and the central California coast. *Monographs of the Western North American Naturalist* 7: 221-224.
- Knudsen, K., J. Lendemer & R. E. Riefner Jr. 2005. *Flavoparmelia subcapitata* rediscovered in southern California. *Bulletin of the California Lichen Society* 11: 1-2.
- Knudsen, K., J. C. Lendemer, M. Schultz, J. Kocourková, J. W. Sheard, A. Pignuolo & T. Wheeler. 2017. Lichen biodiversity and ecology in the San Bernardino and San Jacinto Mountains in southern California (U.S.A.). *Opuscula Philolichenum* 16: 15-138.
- Knudsen, K. & B. McCune. A new squamulose *Sarcogyne* from Oregon. *North American Fungi* 8 (8): 1-6.
- Knudsen, K. & C. A. Morse. 2009. *Acarospora nicolai* (Acarosporaceae), a rediscovered species. *The Bryologist* 112: 147-151.
- Knudsen, K. & B. Owe-Larsson. 2005. *Miriquidica mexicana* in Southern California. *Bulletin of the California Lichen Society* 11: 7-8.
- Knudsen, K., B. Owe-Larsson, J. A. Elix, J. C. Lendemer & J. Kocourková. 2008b. Lichens and lichenicolous fungi of the Santa Monica Mountains, Part 3: additions and corrections to the annotated checklist. *Opuscula Philolichenum* 5: 53-60.
- Knudsen, K., V. Reeb, M. Westberg, R. Srikantha, & D. Bhattacharya. 2010. *Acarospora rosulata* in Europe, North America and Asia. *Lichenologist* 42: 291-296.
- Knudsen, K., J. W. Sheard, J. Kocourková & H. Mayrhofer. 2013b. A new lichenicolous lichen from Europe and western North America in the genus *Dimelaena* (Physciaceae). *The Bryologist* 116(3): 257-262.
- Knudsen, K. & S. M. Standley. 2007. *Sarcogyne*, pp. 289-296. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited*, Arizona State University, Tempe.
- Knudsen, K. & T. Wheeler. 2015. *Niebla ramosissima*: an endemic of San Nicolas Island. *Bulletin of the California Lichen Society* 22(2): 33-36.
- Kocourková, J. 2007. *Roselliniella microthelia*, a new lichenicolous fungus for North America. *Evansia* 24: 113-115.
- Kocourková, J. 2009. Observations on the genus *Neolamya*, with the description of the new species *N. xanthoparmeliae* (Ascomycota, genera incertae sedis). *Opuscula Philolichenum* 6: 137-147.
- Kocourková, J., A. M. Fryday, K. Knudsen, & J. C. Lendemer. 2010. Studies in lichens and lichenicolous fungi: more notes on taxa from North America 6. *Mycotaxon* 111: 423-429.
- Kocourková, J. & D. L. Hawksworth. 2008. *Acaroconium punctiforme* gen. sp. nov., a new lichenicolous coelomycete on *Acarospora* species and *Sarcogyne regularis*. *Lichenologist* 105-109.
- Kocourková, J. & K. Knudsen. 2008. Four new lichenicolous fungi from North America. *Evansia* 25: 62-64.
- Kocourková, J. & K. Knudsen. 2009a. *Gelatinopsis acarosporicola* (Helotiaceae), a new lichenicolous fungus on *Acarospora socialis* from western North America. *The Bryologist* 112: 363-367.
- Kocourková, J. & K. Knudsen. 2009b. A new species of *Stigmidium* (Mycosphaerellaceae, Ascomycetes) from western North America. *Czech Mycology* 61(1): 73-80.
- Kocourková, J. & K. Knudsen. 2009c. *Stigmidium epistigmellum* (Mycosphaerellaceae), a lichenicolous fungus from maritime Caloplaca in North America. *The Bryologist* 112(3): 578-583.
- Kocourková, J. & K. Knudsen. 2009d. Three lichenicolous fungi new for North America. *Evansia* 26(3): 148-151.
- Kocourková, J. & K. Knudsen. 2010. A new species of *Dacampia* (Dacampiaceae) on *Lecania fuscella*. *Bibliotheca Lichenologica* 105: 33-36.
- Kocourková, J. & K. Knudsen. 2011. *Endococcus thelommatis*, a new lichenicolous fungus from southern California. *Bibliotheca Lichenologica* 106: 173-178.
- Kocourková, J. & K. Knudsen. 2012. A new species of *Stigmidium* (Mycosphaerellaceae) on *Aspicilia* from North America. *Mycotaxon* 121: 45-52.
- Kocourková, J. & K. Knudsen. 2015. Notes on the California lichen flora 7: more new records. *Opuscula Philolichenum* 14: 118-120.
- Kocourková, J., K. Knudsen, J.C. Lendemer, & A. M. Fryday. 2008. New California records of lichens and lichenicolous fungi. *Crossosoma* 34:19–23.
- Kocourková, J., K. Knudsen, & S. Tucker. 2012. A checklist of the lichenicolous biota of California. *Opuscula Philolichenum* 11: 64-103.
- Kohlmeyer, J., D. L. Hawksworth, & B. Volkmann-Kohlmeyer. 2004. Observations on two marine and maritime “borderline” lichens: *Mastodia tessellata* and *Collemopsidium pelvetiae*. *Mycological Progress* 3(1): 51-56.
- Kolb, A. & T. Spribille. 2001. *Calicium corynellum* (Ach.) Ach. in the United States, and *Calicium montanum* Tibell new for North America. *Evansia* 18: 90-92.

- Kondratyuk, S. Y. 1996. Four new species of lichenicolous fungi, pp. 309-315. In S. P. Wasser (ed.), Botany and Mycology for the Next Millennium: Collection of Scientific Articles Devoted to the 70th Anniversary of Academician K. M. Sytnik. N. G. Kholodny Institute of Botany, National Academy of Sciences of Ukraine, Kiev.
- Kondratyuk, S. Y. & D. J. Galloway. 1995. Two new lichenicolous fungi from *Lobaria* and *Sticta* (Stictaceae), pp. 255-261. In F. J. A. Daniels, M. Schulz & J. Peine (eds.), Flechten Follmann. Contributions to lichenology in Honour of Gerhard Follmann. Geobotanical and Phytotaxonomical Study Group, Botanical Institute, University of Cologne, Cologne.
- Kondratyuk, S. Y. & I. Kärnefelt. 2003a. Five new Xanthorias from Holarctic. Ukrayins'kyi Botanichnyi Zhurnal 60: 121-130.
- Kondratyuk, S. Y. & I. Kärnefelt. 2003b. Revision of three natural groups of xanthorioid lichens (Teloschistaceae, Ascomycota). Ukrayins'kyi Botanichnyi Zhurnal 60: 427-437.
- Kondratyuk, S., L. Lökös, S. Tschabanenko, M. Haji Moniri, E. Farkas, X. Y. Wang, S.-O. Oh & J.-S. Hur. 2013. New and noteworthy lichen-forming and lichenicolous fungi. Acta Botanica Hungarica 55(3-4): 275-349.
- Kondratyuk, S. & J. Poelt. 1997. Two new Asian *Xanthoria* species (Teloschistaceae, lichenized Ascomycotina). Lichenologist 29: 173-190.
- Kondratyuk, S. Y., B. Zarei-darki & S. J. Khajeddin. 2012. New species and combinations in the genus *Protoparmeliopsis* (Lecanoraceae, lichenized Ascomycota). Ukrayins'kyi Botanichnyi Zhurnal 69(6): 869-879.
- Kowalewska, A., M. Kukwa, I. Ostrowska, A. Jabłońska, M. Oset & J. Szok. 2008. The lichens of the *Cladonia pyxidata-chlorophaea* group and allied species in Poland. Herzogia 21: 61-78.
- Kukwa, M. 2002. Taxonomic notes on the lichen genera *Lepraria* and *Leproloma*. Annales Botanici Fennici 39: 225-226.
- Kukwa, M. 2009a. The lichen genus *Ochrolechia* in Poland III. with a key and notes on some taxa. Herzogia 22: 43-66.
- Kukwa, M. 2009b. *Ochrolechia aegaea* and *O. alaskana*, two species with gyrophoric and variolaric acids in the cortex. Graphis Scripta 21(2): 42-48.
- Kukwa, M. & M. P. Zhurbenko. 2010. Notes on the lichen genus *Lepraria* from the Arctic. Graphis Scripta 22: 3-8.
- Kümmerling, H., C. Leuckert & V. Wirth. 1995. Chemische Flechtenanalysen XI. *Lepraria jackii* Tønsberg. Nova Hedwigia 60: 457-465.
- Kurokawa, S. 2001. Taxonomic notes on *Parmelia reparata* (Parmeliaceae, Lichenes) and the related species. Bulletin of the National Science Museum, Series B [Tokyo] 27: 1-10.
- Ladd, D. & C. Morse. 2012. Endemism lost: *Lecanora pallidochlorina* (Lecanorales, lichenized Ascomycotina) in the Great Plains, U.S.A. Opuscula Philolichenum 11: 60-63.
- LaGreca, S. 1999. A phylogenetic evaluation of the *Ramalina americana* chemotype complex (lichenized Ascomycota, Ramalinaceae) based on rDNA ITS sequence data. The Bryologist 102: 602-618.
- LaGreca, S. & H. T. Lumbsch. 2001. Three species of *Lecanora* new to North America, with notes on other poorly known lecanoroid lichens. The Bryologist 104: 204-211.
- Laundon, J. R. 1986. Studies in the nomenclature of British lichens II. Lichenologist 18: 169-177.
- Laundon, J. R. 2005. The publication and typification of Sir James Edward Smith's lichens in *English Botany*. Botanical Journal of the Linnean Society 147: 483-499.
- Laundon, J. R. 2010. *Lecanora antiqua*, a new saxicolous species from Great Britain, and the nomenclature and authorship of *L. albescens*, *L. conferta* and *L. muralis*. Lichenologist 42: 631-636.
- Launis, A. & L. Myllys. 2014. *Micarea byssacea* new to North America and *Micarea hedlundii* new to Maine, Michigan and Quebec. Opuscula Philolichenum 13: 84-90.
- Lawrey, J. D., P. Diederich, M. P. Nelsen, C. Freebury, D. Van den Broeck, M. Sikaroodi & D. Ertz. 2012. Phylogenetic placement of lichenicolous *Phoma* species in the Phaeosphaeriaceae (Pleosporales, Dothideomycetes). Fungal Diversity 55: 195-213.
- Lawrey, J. D., J. Etayo, M. Dal-Forno, K. E. Driscoll & P. Diederich. 2015. Molecular data support establishment of a new genus for the lichenicolous species *Neobarya usneae* (Hypocreales). The Bryologist 118(1): 83-92.
- Lawrey, J. D., R. Lücking, H. J. M. Sipman, J. L. Chaves, S. A. Redhead, F. Bungarz, M. Sikaroodi & P. M. Gillevet. 2009. High concentration of basidiolichens in a single family of agaricoid mushrooms (Basidiomycota: Agaricales: Hygrophoraceae). Mycological Research 113: 1154-1171.
- Leavitt, S. D., T. L. Esslinger, P. K. Divakar, A. Crespo & H. T. Lumbsch. 2016. Hidden diversity before our eyes: delimiting and describing cryptic lichen-forming fungal species in camouflage lichens (Parmeliaceae, Ascomycota). Fungal Biology 120: 1374-1391.
- Leavitt, S. D., T. L. Esslinger, P. K. Divakar & H. T. Lumbsch. 2012. Miocene divergence, phenotypically cryptic lineages, and contrasting distribution patterns in common lichen-forming fungi (Ascomycota: Parmeliaceae). Biological Journal of the Linnean Society 107: 920-937.
- Lendemer, J. C. 2003. *Dermiscellum oulocheila*, forgotten priority and nomenclatural confusion in the Physciaceae (lichenized Ascomycetes). The Bryologist 106: 311-313.
- Lendemer, J. C. 2004a. Changes and additions to the checklist of North American lichens. I. Mycotaxon 89: 255-257.

- Lendemer, J. C. 2004b. Lichens of Eastern North America Exsiccati. Fascicle II, nos. 51-100. Opuscula Philolichenum 1: 25-39.
- Lendemer, J. C. 2004c. Lichens of Eastern North America Exsiccati. Fascicle III, nos. 101-150. Opuscula Philolichenum 1: 41-54.
- Lendemer, J. C. 2004d. *Placynthiella knudsenii* sp. nov., a new lichen from western North America. Opuscula Philolichenum 1: 75-77.
- Lendemer, J. C. 2004e. Recent records of lichens in the local area (MD, NJ, PA). Opuscula Philolichenum 1: 9-20.
- Lendemer, J. C. 2005a. Lichens of Eastern North America Exsiccati. Fascicle IV, nos. 151-200. Opuscula Philolichenum 2: 37-52.
- Lendemer, J. C. 2005b. *Xanthoparmelia viriduloumbrina*, a neglected species from eastern North America. Mycotaxon 92: 441-442.
- Lendemer, J. C. 2006. Contributions to the lichen flora of New Jersey: a preliminary checklist of the lichens of Wharton State Forest. Opuscula Philolichenum 3: 21-40.
- Lendemer, J. C. 2007a. Lichens of Eastern North America Exsiccati, Fascicle V, Nos. 201-250. Opuscula Philolichenum 4: 69-80.
- Lendemer, J. C. 2007b. *Megalalaria beechingii* (lichenized ascomycota), a new species from Eastern North America. Opuscula Philolichenum 4: 39-44.
- Lendemer, J. C. 2008. Studies in lichens and lichenicolous fungi: notes on some taxa from eastern North America. Mycotaxon 104: 325-329.
- Lendemer, J. C. 2009a. A synopsis of the lichen genus *Heterodermia* (Physciaceae, lichenized Ascomycota) in eastern North America. Opuscula Philolichenum 6: 1-35.
- Lendemer, J. C. 2009b. *Opegrapha moroziana* (Roccellaceae, lichenized ascomycetes), a new sorediate saxicolous species from eastern North America. Opuscula Philolichenum 6: 51-54.
- Lendemer, J.C. 2009c. *Pertusaria andersoniae* (Pertusariaceae, lichenized ascomycetes), a new species from high elevations of the southern Appalachian Mountains in eastern North America. Opuscula Philolichenum 6: 55-58.
- Lendemer, J. C. 2010a. Notes on *Lepraria* s. l. (Lecanoromycetes, Ascomycota) in North America: new species, new reports, and preliminary keys. Brittonia 62: 267-292.
- Lendemer, J. C. 2010b. Notes on the genus *Graphis* (Graphidaceae: Lichenized Ascomycetes) in the coastal plain of southeastern North America. Journal of the Torrey Botanical Society 137: 312-317.
- Lendemer, J. C. 2011a. *Gyalideopsis mexicana*, a new report for North America and a remarkable disjunction from Central America. North American Fungi 6(15): 1-5.
- Lendemer, J. C. 2011b. A taxonomic revision of the North American species of *Lepraria* s.l. that produce divaricatic acid, with notes on the type species of the genus *L. incana*. Mycologia 103(6): 1216-1229.
- Lendemer, J. C. 2011c. *Vezdaea schuyleriana* (Vezdaeaceae, Lichenized Ascomycetes), a new species from eastern North America. Notulae Naturae 484: 1-4.
- Lendemer, J. C. 2012a. Perspectives on chemotaxonomy: molecular data confirm the existence of two morphologically distinct species within a chemically defined *Lepraria caesiella* (Stereocaulaceae). Castanea 77(1): 89-105.
- Lendemer, J. C. 2012b. A tale of two species: molecular data reveal the chemotypes of *Lepraria normandinoides* (Stereocaulaceae) to be two sympatric species. Journal of the Torrey Botanical Society 139(2): 118-130.
- Lendemer, J. C. 2013a. Molecular phylogenetic evidence corroborates morphology but not chemistry in the *Lepraria neglecta* group (Stereocaulaceae). Memoirs of the New York Botanical Garden 108: 127-153.
- Lendemer, J. C. 2013b. A monograph of the crustose members of the genus *Lepraria* Ach. s. str. (Stereocaulaceae, lichenized Ascomycetes) in North America north of Mexico. Opuscula Philolichenum 11: 27-141.
- Lendemer, J. C. 2013c. Two new sterile species of *Loxospora* (Sarrameanaceae: lichenized Ascomycetes) from the Mid-Atlantic Coastal Plain. Journal of the North Carolina Academy of Science 129(3): 71-81.
- Lendemer, J. C. 2015. *Lecanora layana* (Lecanoraceae), a new sorediate species widespread in temperate eastern North America. The Bryologist 118(2): 145-153.
- Lendemer, J. C. 2016a. A new look at *Parmotrema madagascariaceum* and *P. xanthinum* in North America. Journal of the Torrey Botanical Society 143(3): 285-297.
- Lendemer, J. C. 2016b. *Trichothelium americanum*, a new species widespread in the coastal plain of southeastern North America. Journal of the Torrey Botanical Society 143(2): 199-206.
- Lendemer, J.C. 2016c. *Herteliana schuyleriana* (Squamarinaceae), a new crustose lichen widespread in the Appalachian Mountains of eastern North America. Bartoniana 69: 62-76.
- Lendemer, J. C. 2017. Revision of *Gyalideopsis ozarkensis* and *G. subaequatoriana* (Gomphillaceae; lichenized Ascomycetes), leads to the description of an overlooked new species. The Bryologist 120(3): 274-286.
- Lendemer, J. C. & O. Breuss. 2009. *Verrucaria thujae* (Verrucariaceae, lichenized Ascomycetes), a new corticolous species from the Great Lakes Region of North America. Opuscula Philolichenum 7: 13-16.
- Lendemer, J. C., W. R. Buck & R. C. Harris. 2016a. Two new host-specific hepaticolous species of *Catinaria* (Ramalinaceae). Lichenologist 48(5): 441-449.
- Lendemer, J. C. & J. A. Elix. 2010. Two new species of *Chrysothrix* from eastern North America. Opuscula Philolichenum 8: 51-58.

- Lendemer, J. C. & B. Goffinet. 2015. *Sticta deyana*: a new endemic photomorph lichen from the imperiled Mid-Atlantic Coastal Plain of eastern North America. *Systematic Botany* 40(4): 933-941.
- Lendemer, J. C. & R. C. Harris. 2004. A checklist of the lichens collected on the 28th A. Leroy Andrews Foray. *Evansia* 21: 88-100.
- Lendemer, J. C. & R. C. Harris. 2007. *Lepraria normandinoides*, a new widespread species from Eastern North America. *Opuscula Philolichenum* 4: 45-50.
- Lendemer, J. C. & R. C. Harris. 2011. *Ramboldia blochiana*, a new sorediate species in the *Ramboldia russula* group. *Opuscula Philolichenum* 9: 1-4.
- Lendemer, J. C. & R. C. Harris. 2012. Studies in lichens and lichenicolous fungi – no. 16. *Opuscula Philolichenum* 11: 323-321.
- Lendemer, J. C. & R. C. Harris. 2013a. *Buellia sharpiana* (Physciaceae, Lichenized Ascomycetes), another new species from the Great Smoky Mountains of eastern North America. *Castanea* 78(2): 148-153.
- Lendemer, J. C. & R. C. Harris. 2013b. *Cladonia appalachensis*, belated description of a southern Appalachian lichen endemic from the Great Smoky Mountains. *Opuscula Philolichenum* 12: 17-22. 2013.
- Lendemer, J. C. & R. C. Harris. 2014a. Seven new species of Graphidaceae (Lichenized Ascomycetes) from the coastal plain of southeastern North America. *Phytotaxa* 189(1): 153-175.
- Lendemer, J. C. & R. C. Harris. 2014b. Studies in lichens and lichenicolous fungi no. 17 – Notes on lichens from the coastal plain of Southeastern North America. *Opuscula Philolichenum* 13: 8-19.
- Lendemer, J. C. & R. C. Harris. 2014c. Studies in lichens and lichenicolous fungi – no. 18: Resolution of three names introduced by Degelius and Magnusson based on material from the Great Smoky Mountains. *Castanea* 79(2): 106-117.
- Lendemer, J. C. & R. C. Harris. 2014d. Studies in lichens and lichenicolous fungi – no. 19: Further notes on species from the coastal plain of southeastern North America. *Opuscula Philolichenum* 13: 155-176.
- Lendemer, J. C. & R. C. Harris. 2015a. A nomenclatural note on *Mycoporum biseptatum* (basionym *Arthonia biseptata*). *Opuscula Philolichenum* 14: 116-117.
- Lendemer, J. C. & R. C. Harris. 2015b. *Xyleborus nigricans*, a second species for the previously monospecific genus newly found in the Mid-Atlantic Coastal Plain of North America. *The Bryologist* 118(3): 284-292.
- Lendemer, J. C. & R. C. Harris. 2016. Studies in lichens and lichenicolous fungi – No. 20: Further notes on species from the eastern North America. *Opuscula Philolichenum* 15: 105-131.
- Lendemer, J. C. & R. C. Harris. 2017. Nomenclatural changes for North American members of the *Variolaria*-group necessitated by the recognition of *Lepra* (Pertusariales). *The Bryologist* 120(2): 182-189.
- Lendemer, J. C., R. C. Harris & J. A. Elix. 2008a. *Pertusaria appalachensis*, a new species from Eastern North America. *Opuscula Philolichenum* 5: 77-82.
- Lendemer, J. C., R. C. Harris & D. Ladd. 2016b. The faces of *Bacidia schweinitzii*: molecular and morphological data reveal three new species including a widespread sorediate morph. *The Bryologist* 119(2): 143-171.
- Lendemer, J. C., R. C. Harris & A. M. Ruiz. 2016c. A review of the lichens of the Dare Regional Biodiversity Hotspot in the mid-Atlantic coastal plain of North Carolina, Eastern North America. *Castanea* 81(1): 1-77.
- Lendemer, J. C., R. C. Harris & E. Tripp. 2007. *Heterodermia neglecta* (Physciaceae), a new lichen species from eastern North America. *The Bryologist* 110: 490-493.
- Lendemer, J. C., R. C. Harris & E. A. Tripp. 2013. The Lichens and Allied Fungi of Great Smoky Mountains National Park. *Memoirs of the New York Botanical Garden*, vol. 104. New York Botanical Garden Press.
- Lendemer, J. C. & D. A. Hewitt. 2002. A catalogue of the type specimens of lichens in the herbarium of The Academy of Natural Sciences of Philadelphia. *Proceedings of the Academy of Natural Sciences of Philadelphia* 152: 173-204.
- Lendemer, J. C. & B. P. Hodkinson. 2009. The wisdom of fools: new molecular and morphological insights into the North American apodetate species of *Cladonia*. *Opuscula Philolichenum* 7: 79-100.
- Lendemer, J. C. & B. P. Hodkinson. 2010. A new perspective on *Punctelia subrudecta* (Parmeliaceae) in North America: previously rejected morphological characters corroborate molecular phylogenetic evidence and provide insight into an old problem. *Lichenologist* 42: 405-421.
- Lendemer, J. C. & B. P. Hodkinson. 2012. Recognition of the *Parmelia crozalsiana* group as the genus *Crespoa*. *North American Fungi* 7(2): 1-5.
- Lendemer, J. C. & B. P. Hodkinson. 2013. A radical shift in the taxonomy of *Lepraria* s.l.: molecular and morphological studies shed new light on the evolution of asexuality and lichen growth form diversification. *Mycologia* 105(4): 994-1018.
- Lendemer, J. C. & K. Knudsen. 2007. Changes and additions to the North American lichen Mycota – VI. *Proceedings of the Academy of Natural Sciences of Philadelphia* 156: 55-57.
- Lendemer, J. C. & K. Knudsen. 2008a. *Ramonia vermisporea*, a new species from the Sonoran Desert region of southwestern North America. *Opuscula Philolichenum* 5: 83-88.
- Lendemer, J. C. & K. Knudsen. 2008b. Studies in lichens and lichenicolous fungi: further notes on North American taxa. *Mycotaxon* 103: 75-86.
- Lendemer, J. C. & K. Knudsen. 2009. Two new usnic acid containing species of *Lecanora* from Western North America *Opuscula Philolichenum* 6: 73-80.

- Lendemer, J. C. & K. Knudsen. 2010 [2011]. *Lecanographa insolita*, an unusual new species of Roccellaceae from western North America. *The Bryologist* 113: 350-355.
- Lendemer, J. C. & K. Knudsen. 2011. Studies in lichens and lichenicolous fungi: 7. More notes on taxa from North America. *Mycotaxon* 115: 45-52.
- Lendemer, J. C., K. Knudsen & B. J. Coppins. 2009a. Further notes on the genus *Ramonia* in California: the first modern record of *R. ablephora* and the description of *R. extensa* sp. nov. *Opuscula Philolichenum* 7: 191-194.
- Lendemer, J. C., K. Knudsen & J. A. Elix. 2008b. *Lepraria friabilis*, a new species from Eastern North America. *Opuscula Philolichenum* 5: 61-66.
- Lendemer, J. C., K. Knudsen & A. M. Fryday. 2010. New and interesting lichens, lichenicolous and allied fungi from Yosemite National Park, California, U.S.A. *Opuscula Philolichenum* 8: 107-120.
- Lendemer, J. C., J. Kocourková & K. Knudsen. 2009b. Studies in lichen and lichenicolous fungi: more notes on taxa from North America. *Mycotaxon* 108: 491-497.
- Lendemer, J. C., J. Kocourková & K. Knudsen. 2008c. Studies in lichens and lichenicolous fungi: notes on some taxa from North America. *Mycotaxon* 105: 379-386.
- Lendemer, J. C., J. Kocourková & K. Knudsen. 2009c. Studies in lichens and lichenicolous fungi: more notes on taxa from North America. *Mycotaxon* 110: 373-378.
- Lendemer, J. C. & R. Lücking. 2004. *Gyalideopsis moodyae* (Ostropales: Gomphillaceae), a new lichen species from eastern North America. *The Bryologist* 107: 234-236.
- Lendemer, J. C. & T. Lumbsch. 2008. *Protoparmelia capitata* sp. nov., and *P. isidiata* Diederich, Aptroot & Sérus., two species of *Protoparmelia* (Lecanorales, Ascomycota) from south-eastern North America. *Lichenologist* 40: 329-336.
- Lendemer, J. C. & J. A. Macklin. 2006. Contributions to the lichen flora of Pennsylvania: a preliminary checklist of the lichens of Nescopeck State Park. *Opuscula Philolichenum* 3: 41-48.
- Lendemer, J. C. & C. A. Morse. 2010. *Caloplaca yuchiorum* (Teloschistaceae; lichenized Ascomycota), a new sorediate species from North America. *Journal of the Torrey Botanical Society* 127: 327-332.
- Lendemer, J. C. & H. O'Brien. 2011. How do you reconcile molecular and non-molecular datasets? A case study where new molecular data prompts a revision of *Peltigera hydrothyria* s.l. in North America and the recognition of two species. *Opuscula Philolichenum* 9: 99-111.
- Lendemer, J. C. & D. Ray. 2017. Two new pinicolous *Arthonia* (Arthoniaceae: Arthoniomycetes) from the Delmarva Peninsula of the Atlantic Coastal Plain in eastern North America. *The Bryologist* 120(1): 11-18.
- Lendemer, J. C. & A. M. Ruiz. 2015. Molecular data confirm morphological variability in the widespread foliose lichen *Canoparmelia caroliniana* (Parmeliaceae). *Castanea* 80(1): 29-36.
- Lendemer, J. C. & J. W. Sheard. 2006. The typification and distribution of *Rinodina chrysomelaena* (Physciaceae), a rare eastern North American lichen. *The Bryologist* 109: 562-565.
- Lendemer, J. C., J. W. Sheard, G. Thor & T. Tønsberg. 2012. *Rinodina chrysidata*, a new species from far eastern Asia and the Appalachian Mountains of North America. *Lichenologist* 44(2): 179-187.
- Lendemer, J. C., H. B. Stone & E. A. Tripp. 2017. Taxonomic delimitation of the rare, eastern North American endemic lichen *Santessoniella crossophylla* (Pannariaceae). *Journal of the Torrey Botanical Society* 144(4): 459-468.
- Lendemer, J. C. & I. I. Tavares. 2003. Nomenclature and typification in the genus *Usnea* (lichenized Ascomycetes) - I. *Usnea rigida*. *Proceedings of the Academy of Natural Sciences of Philadelphia* 153: 177-180.
- Lendemer, J. C. & T. Tønsberg. 2014. *Lepraria brodoi* (Stereocaulaceae, lichenized Ascomycetes), a new species from the temperate rainforests of western Canada and southeastern Alaska, U.S.A. *Opuscula Philolichenum* 13: 20-25.
- Lendemer, J. C. & E. A. Tripp. 2008. Contributions to the lichen flora of North Carolina: a preliminary checklist of the lichens of Gorges State Park. *The Bryologist* 111(1): 57-67.
- Lendemer, J. C. & E. A. Tripp. 2014. Discovery of *Gyalideopsis mexicana* in the United States. *North American Fungi* 9(7): 1-4.
- Lendemer, J. C. & E. A. Tripp. 2015. *Lecanora anakeestiicola* (Lecanorales): an unusual new fruticose species from Great Smoky Mountains National Park in eastern North America. *The Bryologist* 118(1): 1-10.
- Lendemer, J. C., E. A. Tripp & J. Sheard. 2014. A review of *Rinodina* (Physciaceae) in Great Smoky Mountains National Park highlights the growing significance of this "island of biodiversity" in eastern North America. *The Bryologist* 117(3): 259-281.
- Lendemer, J. C. & M. Westberg. 2010. *Candelariella xanthostigmoides* in North America. *Opuscula Philolichenum* 8: 75-81.
- Lendemer, J. C. & R. Yahr. 2004. A checklist of the lichens collected during the Tuckerman workshop #12, Outer Banks, North Carolina, USA. *Evansia* 21: 118-136.
- Lepage, E. 1972. Nouveau catalogue des lichens du Quebec. *Naturaliste Canadien* 99: 533-550.
- Leuckert, C. & H. Hertel. 2003. On the *Lecidea atrobrunnea* complex (Lecanorales, Lecideaceae) in the Americas. I. Introduction and chemistry. *Bibliotheca Lichenologica* 86: 13-31.

- Lewis, C. J. 2014. Notes on new and interesting cyanolichens from Ontario, Canada. *Opuscula Philolichenum* 13: 34-43. 2014.
- Lewis, C. J. & L. Śliwa. 2012. *Lecanora carlottiana*, a new saxicolous lichen species from the Great Lakes region of North America. *The Bryologist* 115(3): 375-381.
- Lindblom, L. 1997. The genus *Xanthoria* (Fr.) Th. Fr. in North America. *Journal of the Hattori Botanical Laboratory* 83: 75-172.
- Lindblom, L. 2004a. *Xanthomendoza*, pp. 561-566. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Lindblom, L. 2004b. *Xanthoria*, pp. 605-611. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Lindblom, L. 2006. *Xanthomendoza galericulata*, a new sorediate lichen species, with notes on similar species in North America. *The Bryologist* 109: 1-8.
- Llano, G. A. 1950. A Monograph of the Lichen Family Umbilicariaceae in the Western Hemisphere. Navexos P-831. Office of Naval Research, Washington. 281 pp.
- Llop, E. & S. Ekman. 2004. "*Bacidia coprodes*" in the Mediterranean region, p. 18. In T. Randlane & A. Saag (eds.), *Book of Abstracts of the 5th IAL Symposium*. Lichens in Focus. Tartu University Press.
- Llop, E. & S. Ekman. 2007. *Bacidia coprodes* – resurrecting a misinterpreted species. *Lichenologist* 39: 251-257.
- Lohtander, K., L. Myllys, M. Källersjö, R. Moberg, S. Stenroos & A. Tehler. 2009. New entities in *Physcia aipolia*-*P. caesia* group (Physciaceae, Ascomycetes): an analysis based on mtSSU, ITS, group I intron and betatubulin sequences. *Annales Botanici Fennici* 46(1): 43-53.
- Lücking, R. 2008. Follicolous Lichenized Fungi. *Flora Neotropica Monograph* 103. Flora Neotropica Monograph 103. Organization for Flora Neotropica and The New York Botanical Garden Press, Bronx, New York. 866 pp.
- Lücking, R., A. Aptroot, J. L. Chaves, H. J. M. Sipman & L. Umaña. 2007. A first assessment of the TICOLICHEN biodiversity inventory in Costa Rica: the genus *Coccocarpia* (Peltigerales: Coccocarpiaceae). *Bibliotheca Lichenologica* 95: 429-457.
- Lücking, R., W. R. Buck & E. Rivas Plata. 2007. The lichen family Gomphillaceae (Ostropales) in eastern North America, with notes on hyphophore development in *Gomphillus* and *Gyalideopsis*. *The Bryologist* 110: 622-672.
- Lücking, R. & M. Cáceres. 2004. Corticolous species of *Trichothelium* (Ascomycota: Porinaceae). *Mycological Research* 108: 571-575.
- Lücking, R. & K. Kalb. 2000. Follikole Flechten aus Brasilien (vornehmlich Amazonien), inklusive einer Checkliste und Bemerkungen zu *Coenogonium* und *Dimerella* (Gyalectaceae). *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 122: 1-61.
- Lücking, R., K. Kalb, B. Staiger & J. McNeill. 2007. Proposal to conserve the name *Phaeographis*, with a conserved type, against *Creographa*, *Ectographis*, *Flegographa*, *Hymenodecton*, *Platygramma*, and *Pyrographa* (Ascomycota: Ostropales: Graphidaceae), along with notes on the names *Graphina* and *Phaeographina*. *Taxon* 56(4): 1296-1299.
- Lücking, R., A. Mangold & Lumbsch. 2016. A worldwide key to species of the genera *Myriotrema* and *Glaucotrema* (lichenized Ascomycota: Graphidaceae), with a nomenclatural checklist of species published in *Myriotrema* [Ein weltweiter schlüssel zu den arten der gattungen *Myriotrema* und *Glaucotrema* (lichenisierte Ascomycota: Graphidaceae) mit einer nomenklatorischen checkliste aller in der gattung *Myriotrema* publizierten namen]. *Herzogia* 29(2): 493-513.
- Lücking, R., A. Mangold, E. Rivas Plata, S. Parnmen, E. Kraichak & H. T. Lumbsch. 2015. Morphology-based phylogenetic binning to assess a taxonomic challenge: a case study in Graphidaceae (Ascomycota) requires a new generic name for the widespread *Leptotrema wightii*. *Botanical Journal of the Linnean Society* 179(3): 436-443.
- Lücking, R. & B. McCune. 2012. *Graphis pergracilis* new to North America, and a new name for *Graphis britannica* sensu Staiger auct. *Evansia* 29: 77-84.
- Lücking, R., B. Moncada, B. McCune, E. Farkas, B. Goffinet, D. Parker, J. L. Chaves, L. Lököš, P. R. Nelson, T. Spribille, S. Stenroos, T. Wheeler, A. Yanez-Ayabaca, K. Dillman, O. T. Gockman, T. Goward, J. Hollinger, E. A. Tripp, J. Villella, W. R. Álvaro-Alba, C. J. Arango, M. E. S. Cáceres, L. F. Coca, C. Printzen, C. Rodriguez, K. Scharnagl, R. Rozzi, E. Soto-Medina & L. S. Yakovchenko. 2017a. *Pseudocyphellaria crocata* (Ascomycota: Lobariaceae) in the Americas is revealed to be thirteen species, and none of them is *P. crocata*. *The Bryologist* 120(4): 441-500.
- Lücking, R., E. Rivas Plata, K. Kalb, R. S. Common, A. Barcenas Peña & M. V. Duya. 2011a. *Halegrapha* (Ascomycota: Graphidaceae), an enigmatic new genus of tropical lichenized fungi dedicated to Mason E. Hale Jr. *Lichenologist* 43: 1-13.
- Lücking, R., F. Seavey, R. S. Common, S. Q. Beeching, O. Breuss, W. R. Buck, L. Crane, M. Hodges, B. P. Hodkinson, E. Lay, J. C. Lendemer, R. T. McMullin, J. A. Mercado-Díaz, M. P. Nelsen, E. Rivas Plata, W. Safranek, W. B. Sanders, H. P. Schaefer Jr., & J. Seavey. 2011b. The Lichens of Fakahatchee Strand Preserve

- State Park, Florida: Proceedings from the 18th Tuckerman Workshop. Bulletin of the Florida Museum of Natural History 49: 127-186.
- Lücking, R., B. L. Stuart & H. T. Lumbsch. 2004. Phylogenetic relationships of Gomphillaceae and Asterothyriaceae: evidence from a combined Bayesian analysis of nuclear and mitochondrial sequences. *Mycologia* 96: 283-294.
- Lücking, R., R. G. Thorn, I. Saar, M. D. Piercey-Normore, B. Moncada, J. Doering, H. Mann, R. Lebeuf, M. Voitek & A. Voitek. 2017b. A hidden basidiolichen rediscovered: *Omphalina oreades* is a separate species in the genus *Lichenomphalia* (Basidiomycota: Agaricales: Hygrophoraceae). *Lichenologist* 49(5): 467-481.
- Lücking, R. & T. Tønsberg. 2016. *Gyalideopsis pusilla* (Gomphillaceae, lichenized Ascomycetes), a new species from southeastern North America. *North American Fungi* 11(7): 1-4.
- Lumbsch, H. T. 1997. Systematic studies in the suborder Agyriineae (Lecanorales). *Journal of the Hattori Botanical Laboratory* 83: 1-73.
- Lumbsch, H. T. 2002. *Diploschistes*, pp. 173-178. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Lumbsch, H. T. 2004. *Ingvariella*, pp. 136-137. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Lumbsch, H. T. et al. 2011. One hundred new species of lichenized fungi: a signature of undiscovered global diversity. *Phytotaxa* 18: 1-127.
- Lumbsch, H.T. & S. M. Huhndorf. 2010. Myconet Volume 14. Part One. Outline of Ascomycota - 2009. Part Two. Notes on Ascomycete Systematics. Nos. 4751-5113. - *Fieldiana. Life and Earth Sciences* 1: 1-64.
- Lumbsch, H. T. & T. H. Nash III. 1999. A revision of *Pertusaria* species with hyaline ascospores in southwestern North America (Pertusariales, Ascomycotina). *The Bryologist* 102: 215-239.
- Lumbsch, H. T., M. I. Messuti & T. H. Nash III. 2003. New or overlooked species in the *Lecanora subfusca* group from southwestern North America (Lecanorales, Ascomycotina). *The Bryologist* 106: 552-559.
- Lumbsch, H. T., M. Plümper, R. Guderley & G. B. Feige. 1997. The corticolous species of *Lecanora* sensu stricto with pruinose apothecial discs, pp. 131-161. In L. Tibell & I. Hedberg (eds.), *Lichen Studies Dedicated to Rolf Santesson. Symbolae Botanicae Upsalienses* 32. Acta Universitatis Upsaliensis, Uppsala.
- Lumbsch, H. T., I. Schmitt, H. Döring & M. Wedin. 2001. ITS sequence data suggest variability of ascus types and support ontogenetic characters as phylogenetic discriminators in the Agyriales (Ascomycota). *Mycological Research* 105(3): 265-274.
- Lumbsch, H. T. & N. Wirtz. 2011. Phylogenetic relationships of the neuropogonoid core group in the genus *Usnea* (Ascomycota: Parmeliaceae). *Lichenologist* 43(6): 553-559.
- Maass, W. S. G. 1986. *Moelleropsis* (Lecanorales) as a component of *Erioderma* habitats in Atlantic Canada. *Proceedings of the Nova Scotian Institute of Science* 37: 21-36.
- MacDonald, A. M., J. T. Lundholm & S. R. Clayden. 2011. Saxicolous lichens on a Nova Scotian coastal barren. *Northeastern Naturalist* 18(4): 475-488.
- Magain, N., E. Sérusiaux, M. P. Sérusiaux, F. Lutzoni, J. Miadlikowska. 2016 Disentangling the *Peltigera polydactylon* species complex by recognizing two new taxa, *P. polydactylon* subsp. *udeghe* and *P. seneca*. *Herzogia* 29(2): 514-528.
- Mangold, A., M. P. Martín, K. Kalb, R. Lücking & H. T. Lumbsch. 2008. Molecular data show that *Topeliopsis* (Ascomycota, Thelotremaaceae) is polyphyletic. *Lichenologist* 40(1): 39-46.
- Manoharan-Basil, S. S., J. Miadlikowska, T. Goward, Ó. S. Andresson & V. P. W. Miao. 2016. *Peltigera islandica*, a new cyanolichen species in section *Peltigera* ('*P. canina* group'). *Lichenologist* 48(5): 451-467.
- Marbach, B. 2000. Corticole und lignicole Arten der Flechtengattung *Buellia* sensu lato in den Subtropen und Tropen. *Bibliotheca Lichenologica* 74: 1-384.
- Marcano, V., A. Morales Méndez, H. Sipman & L. Calderon. 1996. A first checklist of the lichen-forming fungi of the Venezuelan Andes. *Tropical Bryology* 12: 193-235.
- Marcelli, M. P., L. S. Canêz, M. N. Benatti, A. A. Spielmann, P. Jungbluth & J. A. Elix. 2011. Taxonomical novelties in Parmeliaceae. *Bibliotheca Lichenologica* 106: 211-224.
- Mark, K., L. Saag, S. D. Leavitt, S. Will-Wolf, M. P. Nelsen, T. Tørra, A. Saag, T. Randlane & H. T. Lumbsch. 2016. Evaluation of traditionally circumscribed species in the lichen-forming genus *Usnea*, section *Usnea* (Parmeliaceae, Ascomycota) using a six-locus dataset. *Organisms, Diversity & Evolution* 16: 497-524.
- Matzer, M., H. Mayrhofer, A. Wippel & J. A. Elix. 1996. *Dimelaena radiata* (Physciaceae, Lecanorales) and its lichenicolous fungus *Endococcus buelliae* (Verrucariales). *The Bryologist* 99: 450-456.
- May, P. F. 1997. *Ophioparma lapponica* - a misunderstood species. *Harvard Papers in Botany* 2: 213-228.
- Mayrhofer, H. 1987. Ergänzende Studien zur Taxonomie der Gattung *Protothelenella*. *Herzogia* 7: 313-342.
- Mayrhofer, H. & J. W. Sheard. 2002. *Amandinea cacuminum*: a new combination (Physciaceae, lichenized Ascomycetes). *Mycotaxon* 82: 437-441.
- Mayrhofer, H. & J. W. Sheard. 2007. *Rinodina archaea* (Physciaceae, lichenized Ascomycetes) and related species. *Bibliotheca Lichenologica* 96: 229-246.

- Mayrhofer, H., J. W. Sheard, M. C. Grassler & J. A. Elix. 2001. *Rinodina intermedia* (Physciaceae, lichenized Ascomycetes): a well-characterized species with submuriform ascospores. *The Bryologist* 104: 456-463.
- McCarthy, J. W., M. Pitcher, & S. R. Clayden. 2012. *Parmeliopsis esorediata* (Degel.) Nordnes discovered in North America. *Evansia* 29: 85.
- McCarthy, P. M. & T. Tønsberg. 1998. *Porina radiculicola*, a new lichen from western North America. *Lichenologist* 30: 245-248.
- McCune, B. 1996. *Micarea botryoides* new to North America. *Evansia* 13: 65-66.
- McCune, B. 1997a. *Lauderlindsaya*, a parasitic fungus on *Normandina*, new to North America. *Evansia* 14: 13.
- McCune, B. 1997b. *Ptychographa*, a lichen genus new to North America. *The Bryologist* 100: 239-240.
- McCune, B. 1998a. *Hypotrachyna riparia*, a new lichen from western North America. *The Bryologist* 101: 448-450.
- McCune, B. 1998b. Lichens of granitic peaks in the Bitterroot Range, Montana and Idaho, USA, pp. 281-294. *In* M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.
- McCune, B. 2002. *Hypogymnia*, pp. 228-238. *In* T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- McCune, B. 2008. Three species of *Hypogymnia* (Ascomycota: Parmeliaceae) from the Bering Sea region, Alaska and Russia. *North American Fungi* 3: 1-10.
- McCune, B. 2017. *Microlichens of the Pacific Northwest, Vol. 2, Keys to the Species*. 755 pp. Wild Blueberry Media, Corvallis, Oregon.
- McCune, B., T. Ahti & C. M. Duncan. 2006. *Hypogymnia incurvroides* (Parmeliaceae), a little-known Russian species discovered in eastern North America. *The Bryologist* 109: 80-84.
- McCune, B., F. Camacho & J. Ponzetti. 2002. Three new species of *Trapeliopsis* on soil in western North America. *The Bryologist* 105: 78-85.
- McCune, B. & M. J. Curtis. 2012. *Umbilicaria semitensis* (lichenized fungi: Umbilicariaceae) resurrected. *The Bryologist* 115(2): 255-264.
- McCune, B., M. J. Curtis & J. Di Meglio. 2017. New taxa and a case of ephemeral spore production in Lecideaceae from western North America. *The Bryologist* 120(2): 115-124.
- McCune, B., J. Di Meglio & M. J. Curtis. 2014a. An unusual ascospore shape and a new species, *Umbilicaria nodulospora* (Umbilicariaceae), from California and Oregon. *The Bryologist* 117(2): 170-178.
- McCune, B., E. A. Holt, P. N. Neitlich, T. Ahti & R. Rosentreter. 2009. Macrolichen diversity in Noatak National Preserve, Alaska. *North American Fungi* 4(4): 1-22.
- McCune, B. & H. T. Lumbsch. 2017. *Lambiella arenosa*, a new species from the coastal Oregon dunes. *The Bryologist* 120(3): 329-334.
- McCune, B. & J. Ponzetti. 2005. *Cercidospora soror* and *Rhizocarpon malenconianum* from North America. *Evansia* 22: 6-12.
- McCune, B. & R. Rosentreter. 1997. *Hypogymnia subphysodes* new to North America. *Evansia* 14: 106.
- McCune, B. & R. Rosentreter. 2007. *Biotic Soil Crust Lichens of the Columbia Basin*. Monographs in North American Lichenology. Volume 1. Northwest Lichenologists, Ltd., Corvallis. 105 pages.
- McCune, B. & R. Rosentreter. 2014. New lichen records from Oregon to Alaska in North America. *Evansia* 31(1): 1-7.
- McCune, B., R. Rosentreter & a Debolt. 1997. Biogeography of rare lichens from the coast of Oregon, pp. 234-241. *In* T. N. Kaye, A. Liston, R. M. Love, D. L. Luoma, R. J. Meinke & M. V. Wilson (eds.), *Conservation and Management of Native Plants and Fungi*. Native Plant Society of Oregon, Corvallis.
- McCune, B., R. Rosentreter, T. Spribille, O. Breuss & T. Wheeler. 2014b. *Montana Lichens: An Annotated List*. Monographs in North American Lichenology 2: 1-183. Northwest Lichenologists, Corvallis, Oregon.
- McCune, B. & C. Schoch. 2009. *Hypogymnia minilobata* (Parmeliaceae), a new lichen from coastal California. *The Bryologist* 112: 94-100.
- McCune, B., C. Schoch, H. T. Root, S. A. Kageyama & J. Miadlikowska. 2011. Geographic, climatic, and chemical differentiation in the *Hypogymnia imshaugii* species complex (Lecanoromycetes, Parmeliaceae) in North America. *The Bryologist* 114(3): 526-544.
- McCune, B. & J. Stone. 2009. *Leightonimyces phillipsii*, a synnemalous soil-dwelling hyphomycete new to North America. *North American Fungi* 4(5):1-4.
- McCune, B., E. Timdal & M. Bendiksby. 2016. *Rhizocarpon quinonum*, a new anthraquinone-containing species from the Alaska Peninsula. *Lichenologist* 48(5): 367-375.
- McDonald, T., J. Miadlikowska & F. Lutzoni. 2003. The lichen genus *Sticta* in the Great Smoky Mountains: a phylogenetic study of morphological, chemical, and molecular data. *The Bryologist* 106: 61-79.
- McMullin, R. T., J. Gagnon, F. Anderson, W. R. Buck, S. R. Clayden, B. C. Dorin, A. Fryday, J. G. Guccion, R. C. Harris, J. Hinds, C. Isabel, D. Ladd, E. Lay, J. C. Lendemer, J. R. Maloles, C. Roy, & D. P. Waters. 2017. One hundred new provincial, national, and continental lichen and allied fungi records from Parc National de la Gaspésie, Québec, Canada. *Northeastern Naturalist* 24(4): 446-466.

- McMullin, R. T. & J. C. Lendemer. 2013. Lichen biodiversity and conservation status in the Copeland Forest Resources Management Area: a lichen-rich second-growth forest in southern Ontario. *Canadian Field-Naturalist* 127: 240-254.
- McMullin, R. T. & J. C. Lendemer. 2016. *Megalaria allenae* (Ramalinaceae), a new sorediate species from southeastern North America previously confused with *M. pulvereae*. *The Bryologist* 119(3): 290-297.
- McMullin, R. T., J. C. Lendemer, H. E. Braid & S. G. Newmaster. 2016. Molecular insights into the lichen genus *Alectoria* (Parmeliaceae) in North America. *Botany* 94: 165-175.
- McMullin, R. T., S. B. Selva, J. R. Maloles & S. G. Newmaster. 2012. *Calicium denigratum* (Vain.) Tibell, a new lichen record for North America. *North American Fungi* 7(11): 1-5.
- Messuti, M. I. & H. T. Lumbsch. 2000. A revision of the genus *Ochrolechia* in southern South America. *Bibliotheca Lichenologica* 75: 33-46.
- Miadlikowska, J. et al. (31 co-authors). 2014a. A multigene phylogenetic synthesis for the class Lecanoromycetes (Ascomycota): 1307 fungi representing 1139 infrageneric taxa, 317 genera and 66 families. *Molecular Phylogenetics and Evolution* 79: 132-168.
- Miadlikowska, J. & F. Lutzoni. 2000. Phylogenetic revision of the genus *Peltigera* (lichen-forming Ascomycota) based on morphological, chemical, and large subunit nuclear ribosomal DNA data. *International Journal of Plant Science* 161: 925-958.
- Miadlikowska, J., B. McCune & F. Lutzoni. 2002. *Pseudocyphellaria perpetua*, a new lichen from western North America. *The Bryologist* 105: 1-10.
- Miadlikowska, J., D. Richardson, N. Magain, B. Ball, F. Anderson, R. Cameron, J. Lendemer, C. Truong & F. Lutzoni. 2014b. Phylogenetic placement, species delimitation, and cyanobiont identity of endangered aquatic *Peltigera* species (lichen-forming Ascomycota, lecanoromycetes). *American Journal of Botany* 101(7): 1141-1156.
- Miadlikowska, J., C. L. Schoch, S. A. Kageyama, K. Molnar, F. Lutzoni & B. McCune. 2011. *Hypogymnia* phylogeny, including *Cavernularia*, reveals biogeographic structure. *The Bryologist* 114(2): 392-400.
- Michlig, S. A. & L. I. Ferraro. 2010. The first record of *Parmotrema pseudocrinitum* (Parmeliaceae, lichenized Ascomycota) in South America. *Mycotaxon* 112: 275-282.
- Millanes, A. M., P. Diederich & M. Wedin. 2016. *Cyphobasidium* gen. nov., a new lichen-inhabiting lineage in the Cystobasidiomycetes (Pucciniomycotina, Basidiomycota, Fungi). *Fungal Biology* (in press).
- Millanes, A. M., P. Diederich, M. Westberg & M. Wedin. 2016. Three new species in the *Biatropsis usnearum* complex. *Herzogia* 29: 337-354.
- Millanes, A. M., M. Westberg, M. Wedin & P. Diederich. 2012. *Tremella diploschistina* (Tremellales, Basidiomycota, Fungi), a new lichenicolous species growing on *Diploschistes*. *Lichenologist* 44(3): 321-332.
- Miller, N. G., A. M. Fryday & J. W. Hinds. 2005. Bryophytes and lichens of a calcium-rich spring seep isolated on the granitic terrain of Mt. Katahdin, Maine, U.S.A. *Rhodora* 107: 339-358.
- Moberg, R. 1995. The lichen genus *Phaeophyscia* in China and Russian Far East. *Nordic Journal of Botany* 15: 319-335.
- Moberg, R. 1997. The lichen genus *Physcia* in the Sonoran Desert and adjacent regions, pp. 163-186. In L. Tibell & I. Hedberg (eds.), *Lichen Studies Dedicated to Rolf Santesson*. *Symbolae Botanicae Upsalienses* 32. Acta Universitatis Upsaliensis, Uppsala.
- Moberg, R. 2011. The lichen genus *Heterodermia* (Physciaceae) in South America – a contribution including five new species. *Nordic Journal of Botany* 29: 129-147.
- Moberg, R. & G. Carlin. 1996. The genus *Placopsis* (Trapeliaceae) in Norden. *Symbolae Botanicae Upsalienses* 31: 319-325.
- Moberg, R. & T. H. Nash III. 1999. The genus *Heterodermia* in the Sonoran Desert area. *The Bryologist* 102: 1-14.
- Moe, R. 1997. *Verrucaria tavaresiae* sp. nov. *Bulletin of the California Lichen Society* 4: 7-11.
- Mohr, C. 1901. Plant life of Alabama. Contributions from the U.S. National Herbarium, vol. 6, 921 pp.
- Molina, M. C., A. Crespo, O. Blanco, N. Hladun & D. L. Hawksworth. 2002. Molecular phylogeny and status of *Diploicia* and *Diplotomma*, with observations on *Diploicia subcanescens* and *Diplotomma rivas-martinezii*. *Lichenologist* 34: 509-519.
- Molina, M. C., R. Del-Prado, P. K. Divakar, D. Sánchez-Mata & A. Crespo. 2011. Another example of cryptic diversity in lichen-forming fungi: The new species *Parmelia mayi* (Ascomycota: Parmeliaceae). *Organisms Diversity and Evolution* 11(5): 331-342.
- Molina, M. C., P. K. Divakar, T. Goward, A. M. Millanes, H. T. Lumbsch & A. Crespo. 2016. Neogene diversification in the temperate lichen-forming fungal genus *Parmelia* (Parmeliaceae, Ascomycota). *Systematics and Biodiversity*, 2016, 1-16.
- Moncada, B., R. Lücking & L. Betancourt-Macuase. 2013. Phylogeny of the *Lobariaceae* (lichenized Ascomycota: *Peltigerales*), with a reappraisal of the genus *Lobariella*. *Lichenologist* 45 (2): 203-263.
- Moncada, B., B. Reidy & R. Lücking. 2014. A phylogenetic revision of Hawaiian *Pseudocyphellaria* sensu lato (lichenized Ascomycota: Lobariaceae) reveals eight new species and a high degree of inferred endemism. *The Bryologist* 117(2): 119-160.

- Morse, C. A. 2013. A new lichenicolous *Enterographa* (Arthoniales, Roccellaceae) from central North America. *Opuscula Philolichenum* 12: 233-240.
- Morse, C. A. 2016. Two new species of *Thelenella* and new reports from the Great Plains of central North America, with a worldwide key to the genus. *Opuscula Philolichenum* 15: 22-36.
- Morse, C. A. & D. Ladd. 2013. A new species of *Fellhanera* (lichenized Ascomycota: *Pilocarpaceae*) from central North America. *Lichenologist* 45(3): 341-346.
- Morse, C. A. & D. Ladd. 2015. *Lichenes Exsiccati Magnicamporum* Fascicle 1, with comments on selected taxa. *Opuscula Philolichenum* 14: 66-81.
- Morse, C. A. & D. Ladd. 2016. *Lecanora inaurata*, a new member of the the *L. subfusca* group from central North America. *Lichenologist* 48(5): 377-385.
- Muggia, L., C. Gueidan & M. Grube. 2010. Phylogenetic placement of some morphologically unusual members of Verrucariales. *Mycologia* 102: 835-846.
- Muggia, L., J. Kocourková & K. Knudsen. 2015. Disentangling the complex of *Lichenothelia* species from rock communities in the desert. *Mycologia* 107(6): 1233-1253.
- Muggia, L., P. Nelson, T. Wheeler, L. S. Yakovchenko, T. Tønsberg & T. Spribille 2011: Convergent evolution of a symbiotic duet: The case of the lichen genus *Polychidium* (Peltigerales, Ascomycota). *American Journal of Botany* 98(10): 1647-1656.
- Muscavitch, Z. M. & J. C. Lendemer. 2016. A new species of *Acanthothecis* (Ostropales), highlights subtropical floristic elements of the southern Appalachian lichen biota in eastern North America. *The Bryologist* 119(4): 350-360.
- Muscavitch, Z. M., J. C. Lendemer & R. C. Harris. 2017a. A review of the lichen genus *Phlyctis* in North America (Phlyctidaceae) including the description of a new widespread saxicolous species from eastern North America. *The Bryologist* 120(4): 388-417.
- Muscavitch, Z. M., J. C. Lendemer & R. C. Harris. 2017b. A synopsis of the lichenicolous fungi occurring on *Phlyctis* including description of a new *Monodictys* widespread on *P. speirea*. *The Bryologist* 120(4): 418-426.
- Myllys, L., S. Velmala, H. Holien, P. Halonen, L. Wang & T. Goward. 2011. Phylogeny of the genus *Bryoria*. *Lichenologist* 43(6): 617-638.
- Myllys, L., S. Velmala, H. Lindgren, D. Glavich, T. Carlberg, L. Wang & T. Goward. 2014. Taxonomic delimitation of the genera *Bryoria* and *Sulcaria*, with a new combination *Sulcaria spiralifera* introduced. *Lichenologist* 46(6): 737-752.
- Myllys, L., S. Velmala, R. Pino-Bodas & T. Goward. 2016. New species in *Bryoria* (Parmeliaceae, Lecanoromycetes) from north-west North America. *Lichenologist* 48(5): 355-365.
- Nadyeina, O., M. Grube & H. Mayrhofer. 2010. A contribution to the taxonomy of the genus *Rinodina* (Physciaceae, lichenized Ascomycotina) using combined ITS and mtSSU rDNA data. *Lichenologist* 42: 521-531.
- Nash, T. H., III. 2002. Previously reported but currently excluded species from the Greater Sonoran Desert Region, pp. 509-510. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Nash, T. H., III & J. A. Elix. 2004. *Xanthoparmelia*, pp. 566-604. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Nash, T. H., III & H. Hertel. 1997. *Lecanora comodensis* (Lecanorales: Lecanoraceae), a new species of lichenized fungi from the Sonoran Desert Region. *The Bryologist* 100: 377-379.
- Nash, T. H., III, C. Kainz, L. Zedd, B. D. Ryan & G. Rambold. 2004a. *Miriquidica*, pp. 361-363. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Nash, T. H., III, K. Kalb & G. Rambold. 2004b. *Tephromela*, pp. 530-532. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Nash, T. H., III, B. D. Ryan, W. C. Davis, O. Breuss, J. Hafellner, H. T. Lumbsch, L. Tibell & T. Feuerer. 1998. Additions to the lichen flora of Arizona IV. *The Bryologist* 101: 93-99.
- Nash, T. H., III, H. G. M. Sipman & J. A. Elix. 2002. *Hypotrachyna*, pp. 238-251. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Navarro-Rosinés, P., V. Calatayud & J. Hafellner. 2004. *Cercidospora*, pp. 635-639. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Navarro-Rosinés, P. & J. Hafellner. 1996. *Lichenostigma elongata* spec. nov. (Dothideales), a lichenicolous ascomycete on *Lobothallia* and *Aspicilia* species. *Mycotaxon* 57: 211-225.
- Navarro-Rosinés, P. & J. Hafellner. 2004. *Cercidospora*, pp. 635-639. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.

- Navarro-Rosinés, P. & N. L. Hladun. 2004. *Sarcopyrenia*, pp. 690-691, In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Navarro-Rosinés, P., C. Roux & C. Gueidan. 2007. La generoj *Verrucula* kaj *Verruculopsis* (Verrucariaceae, Verrucariales). Bulletin de la Société Linnéenne de Provence 58: 133-180.
- Neily, T. & F. Anderson. 2010. *Leptogium hibernicum* Mitch. ex P. M. Jørg. discovered in North America. Lichenologist 42: 629.
- Nelsen, M. P., R. Lücking, C. J. Andrew, E. Rivas Plata, J. L. Chaves, M. E. S. Cáceres & N. Ventura. 2012. Dismantling *Herpothallon*: *Herpothallon antillarum* (Arthoniomycetes: Arthoniaceae) is a member of the genus *Diorygma* (Lecanoromycetes: Graphidaceae). Bryologist 115(2): 313-321.
- Nelsen, M. P., R. Lücking, M. E. S. Cáceres, A. Aptroot & H. T. Lumbsch. 2017. Assessing the phylogenetic placement and redundancy of Aspidotheliaceae (Ascomycota), an orphaned family of lichen-forming fungi. Systematics and Biodiversity 15(1): 63-73.
- Nelsen, M. P., R. Lücking, E. Rivas Plata & J. S. Mbatchou. 2010. *Heiomasia*, a new genus in the lichen-forming family Graphidaceae (Ascomycota: Lecanoromycetes: Ostropales) with disjunct distribution in Southeastern North America and Southeast Asia. The Bryologist 113: 742-751.
- Nelsen, M. P., A. Thell, S. D. Leavitt, C. J. Hampton-Miller & H. T. Lumbsch. 2013. A reappraisal of *Masonhalea* (Parmeliaceae, Lecanorales) based on molecular and morphological data. Lichenologist 45(6): 729-738.
- Nelson, P. R., R. Kepler, J. Walton, J. Fankhauser, L. Nelson & Wang Li Song. 2013. *Parmelina yalungana* resurrected and reported from Alaska, China and Russia. The Bryologist 115(4): 557-565.
- Nimis, P. L. & S. Martellos. 2003. A Second Checklist of the Lichens of Italy with a Thesaurus of Synonyms. Museo Regionale di Scienze Naturali Saint-Pierre - Valle d'Aosta. 192 pp.
- Nimis, P. L. & M. Tretiach. 1997. A revision of *Tornabea*, a genus of fruticose lichens new to North America. The Bryologist 100: 217-225.
- Nordin, A. 1996. *Buellia* species (Physciaceae) with pluriseptate spores in Norden. Symbe Botanicae Upsalienses 31: 327-354.
- Nordin, A. 1999. *Buellia* species with pluriseptate spores: new and unrecorded species in North America. The Bryologist 102: 249-264.
- Nordin, A. 2000. Taxonomy and phylogeny of *Buellia* species with pluriseptate spores (Lecanorales, Ascomycotina). Symbolae Botanicae Upsalienses 33: 1-117.
- Nordin, A. 2002. *Collemopsidium angermannicum*, a widespread but rarely collected aquatic lichen. Graphis Scripta 13: 39-41.
- Nordin, A. 2004. New species in *Tetramelas*. Lichenologist 36: 355-359.
- Nordin, A., S. Savić & L. Tibell. 2010. Phylogeny and taxonomy of *Aspicilia* and Megasporaceae. Mycologia 102: 1339-1349.
- Nordin, A. & L. Tibell. 2005. Additional species in *Tetramelas*. Lichenologist 37: 491-498.
- Nordin, A., L. Tibell & B. Owe-Larsson. 2007. A preliminary phylogeny of *Aspicilia* in relation to morphological and secondary product variation. Bibliotheca Lichenologica 96: 247-266.
- Nordin, A., L. Tibell & B. Owe-Larsson. 2009. *Endocarpon moenium* belongs in Acarosporaceae. Graphis Scripta 21: 21-22.
- Orange, A. 2004. *Verrucaria papillosa* is a synonym of *V. viridiula*. Lichenologist 36: 445-447.
- Orange, A. 2009. *Thelidium* A. Massal. (1855), pp. 879-883, In C. W. Smith et al., The Lichens of Great Britain and Ireland. British Lichen Society, London.
- Orange, A. 2012. Semi-cryptic marine species of *Hydropunctaria* (Verrucariaceae, lichenized Ascomycota) from north-west Europe. Lichenologist 44(3): 299-320.
- Otálora, M. A. G., I. Martinez, M. C. Molina, G. Aragon & F. Lutzoni 2008: Phylogenetic relationships and taxonomy of the *Leptogium lichenoides* group (Collemataceae, Ascomycota) in Europe. Taxon 57(3): 907-921.
- Otálora, M. A. G., P. M. Jørgensen & M. Wedin. 2014. A revised generic classification of the jelly lichens, *Collemataceae*. Fungal Diversity 64: 275-293.
- Owe-Larsson, B., A. Nordin & L. Tibell. 2007. *Aspicilia*, pp. 61-108. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Owe-Larsson, B., A. Nordin, L. Tibell & M. Sohrabi. 2011. *Circinaria arida* sp. nova and the '*Aspicilia desertorum*' complex. Bibliotheca Lichenologica 106: 235-246.
- Owe-Larsson, B. & B. D. Ryan. 2007. *Bellemerea*, pp. 110-112. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Palice, Z., C. Printzen, T. Spribille & J. A. Elix. 2011. Notes on the synonyms of *Lecanora filamentosa*. Graphis Scripta 23(1): 1-7.
- Pérez-Ortega, S. & T. Spribille. 2007. *Bellemarella ritae* sp. nov. (Verrucariaceae), a new lichenicolous ascomycete from northwest North America. Nova Hedwigia 85: 515-520.

- Pérez-Ortega, S. & T. Spribille. 2009a. *Lepraria torii*, a new epiphytic species with fumarprotocetraric acid from northwest North America. *Graphis Scripta* 21(2): 36-41.
- Pérez-Ortega, S. & T. Spribille. 2009b. Three new species of *Lichenopeltella* (Microthyriaceae, Ascomycota) from northwest North America. *Nova Hedwigia* 89: 219-228.
- Pérez Ortega, S., J. Etayo & T. Spribille 2011. A new species of *Llimoniella* (Ascomycota, Helotiales) on *Ramboldia cinnabarina* from Alaska. *Lichenologist* 43(4): 363-366.
- Pérez-Ortega, S., T. Spribille, Z. Palice, J. A. Elix & C. Printzen. 2010. A molecular phylogeny of the *Lecanora varia* group, including a new species from western North America. *Mycological Progress* 9(4): 523-535.
- Pérez-Vargas, I., C. Hernández Padrón, R. Arroyo & E. Serriñá. 2010. *Usnea brasiliensis* (Zahlbr.) Motyka (Parmeliaceae), a new amphi-Atlantic disjunct lichen species. *The Bryologist* 113: 308-312.
- Perlmutter, G. B. 2006. *Flakea papillata* in North America. *The Bryologist* 109: 566-569.
- Perlmutter, G. B., G. B. Blank & E. Rivas Plata. 2017. Checklists of corticolous lichenized and allied fungi collected in mixed forests of western Wake County, North Carolina, USA. *Evansia* 34 (1): 23-37.
- Perlmutter, G. B. & D. N. Greene. 2005. Corrections and additions to the North Carolina, USA lichen checklist. *Evansia* 22: 126-137.
- Perlmutter, G. B., S. C. Tucker, E. Rivas Plata, P. Clerc & R. Lücking. 2015. *Melaspilea demissa* (Tuck.) Zahlbr. (lichenized Ascomycota) in eastern North America with a key to North American species of *Melaspilea* s. lat. *Lichenologist* 47(3): 167-182.
- Peterson, E. B. & T. Goward. 2016. *Chaenothecopsis aeruginosa* sp. nov., an overlooked Calicioid in the Pacific Northwest of North America. *Herzogia* 29(2): 561-565.
- Peterson, E. B. & J. Rikkinen. 1998. *Stenocybe fragmenta*, a new species of Mycocaliciaceae with fragmenting spores. *Mycologia* 90: 1087-1090.
- Peterson, E. B. & J. Rikkinen. 1999. Range extensions of selected pin-lichens and allied fungi in the Pacific Northwest. *The Bryologist* 102: 370-376.
- Piercey-Normore, M. 2010. Phylogenetic and haplotype analyses of four segregates within *Cladonia arbuscula* s.l. *Botany* 88: 397-408.
- Pino-Bodas, R., A. R. Burgaz & M. P. Martín. 2010. Elucidating the taxonomic rank of *Cladonia subulata* versus *C. rei* (Cladoniaceae). *Mycotaxon* 113: 311-326.
- Pino-Bodas, R., T. Ahti, S. Stenroos, M. P. Martín & A. R. Burgaz. 2012. *Cladonia conista* and *C. humilis* (Cladoniaceae) are different species. *Bibliotheca Lichenologica* 108: 161-176.
- Pino-Bodas, R., T. Ahti, S. Stenroos, M. P. Martín & A. R. Burgaz. 2013. Multilocus approach to species recognition in the *Cladonia humilis* complex. *American Journal of Botany* 100(4): 664-678.
- Pino-Bodas, R., M. P. Zhurbenko & S. Stenroos. 2017. Phylogenetic placement within Lecanoromycetes of lichenicolous fungi associated with *Cladonia* and some other genera. *Persoonia* 39: 91-117.
- Ponzetti, J. & B. McCune. 2006. A new species of *Bactrospora* from northwestern North America. *The Bryologist* 109: 85-88.
- Prieto, M., I. Martínez, G. Aragón, C. Gueidan & F. Lutzoni. 2012. Molecular phylogeny of *Heteroplacidium*, *Placidium* and related catapyrenioid genera (Verrucariaceae, lichen-forming Ascomycota). *American Journal of Botany* 99(1): 23-35.
- Prieto, M. & M. Wedin. 2017. Phylogeny, taxonomy and diversification events in the Caliciaceae. *Fungal Diversity* 82: 221-238.
- Printzen, C. 1995. Die Flechtengattung *Biatora* in Europa. *Bibliotheca Lichenologica* 60: 1-275.
- Printzen, C. 1999. *Japewiella* gen. nov., a new lichen genus and a new species from Mexico. *The Bryologist* 102: 714-719.
- Printzen, C. 2001. Corticolous and lignicolous species of *Lecanora* (Lecanoraceae, Lecanorales) with usnic or isousnic acid in the Sonoran Desert Region. *The Bryologist* 104: 382-409.
- Printzen, C. 2004. *Biatora*, pp. 37-39. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Printzen, C. 2014. A molecular phylogeny of the lichen genus *Biatora* including some morphologically similar species. *Lichenologist* 46(3): 441-453.
- Printzen, C., J. P. Halda, J. W. McCarthy, Z. Palice, P. Rodriguez-Flakus, G. Thor, T. T. J. P. Halda, J. W. McCarthy, Z. Palice, P. Rodriguez-Flakus, G. Thor, T. Tønsberg & J. Vondrák. 2014. Five new species of *Biatora* from four continents. *Herzogia* 29(2): 566-585.
- Printzen, C. & G. Kantvilas. 2004. *Hertelidea*, genus novum Stereocaulacearum (Ascomycetes lichenisati). *Bibliotheca Lichenologica* 88: 539-553.
- Printzen, C. & P. May. 2002. *Lecanora ramulicola* (Lecanoraceae, Lecanorales), an overlooked lichen species from the *Lecanora symmicta* group. *The Bryologist* 105: 63-69.
- Printzen, C. & B. McCune. 2004. *Trapeliopsis*, pp. 538-541. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.

- Printzen, C. & V. Otte. 2005. *Biatora longispora*, new to Europe, and a revised key to European and Macaronesian *Biatora* species. *Graphis Scripta* 17: 56-61.
- Printzen, C., T. Spribille & T. Tønsberg. 2008. *Myochroidea*, a new genus of corticolous, crustose lichens to accommodate the *Lecidea leprosula* group. *Lichenologist* 40 : 195-207
- Printzen, C. & T. Tønsberg. 1999. The lichen genus *Biatora* in northwestern North America. *The Bryologist* 102: 692-713.
- Printzen, C. & T. Tønsberg. 2003. Four new species and three new apothecial pigments of *Biatora*. *Bibliotheca Lichenologica* 86: 133-145.
- Printzen, C. & T. Tønsberg. 2004. New and interesting *Biatora*-species, mainly from North America. *Symbolae Botanicae Upsalienses* 8: 343-357.
- Printzen, C. & T. Tønsberg. 2007. *Bacidia lobarica* (Bacidaceae, Lecanorales) sp. nov., a sorediate lichen from the southeastern U.S.A. *The Bryologist* 110: 487-489.
- Printzen, C., T. Tønsberg & Z. Palice. 2002. *Biatora aegrefaciens*, rare but widespread. *Graphis Scripta* 13: 37-38.
- Purvis, O. W., P.-M. Jørgensen & P. W. James. 1995. The lichen genus *Thelotrema* Ach. in Europe. *Bibliotheca Lichenologica* 58: 335-360.
- Qian, H. & K. Klinka. 1998. *Plants of British Columbia*. UBC Press, Vancouver, 534 pp.
- Raithelhuber, J. 1983. Über die Nomenklatur einiger Argentinischer Blätterpilze. *Metrodiana Sonderheft* 2: 1-24.
- Rajvanshi, V., L. L. St. Clair, B. L. Webb & C. C. Newberry. 1998. The terricolous lichen flora of the San Rafael Swell, Emery County, Utah, U.S.A, pp. 399-406. *In* M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.
- Rambold, G. 1989. A Monograph of the Saxicolous Lecideoid Lichens of Australia (Excl. Tasmania). *Bibliotheca Lichenologica* 34: 1-345.
- Rambold, G. & D. Triebel. 1990. *Gelatinopsis*, *Geltingia* and *Phaeopyxis*: three helotialean genera with lichenicolous species. *Notes from the Royal Botanic Garden Edinburgh* 46: 375-389.
- Rambold, G. & D. Triebel. 1992. The Inter-lecanoralean Associations. *Bibliotheca Lichenologica* 48: 1-201.
- Réblová, M., W. A. Untereiner & K. Réblová. 2013. Novel evolutionary lineages revealed in the Chaetothyriales (Fungi) based on multigene phylogenetic analyses and comparison of ITS secondary structure. *PloS ONE* 8(5): 1-28.
- Redhead, S. A., F. Lutzoni, J.-M. Moncalvo & R. Vilgalys. 2002. Phylogeny of agarics: partial systematics solutions for core omphalinoid genera in the Agaricales (Euagarics). *Mycotaxon* 83: 19-57.
- Reese Naesborg, R. 2010. Taxonomic revision of the *Lecania cyrtella* group based on molecular and morphological evidence. *Mycologia* 100: 397-416.
- Resl, P., H. Mayrhofer, S. R. Clayden, T. Spribille, G. Thor, T. Tønsberg & J. W. Sheard. 2016. Morphological, chemical and species delimitation analyses provide new taxonomic insights into two groups of *Rinodina*. *Lichenologist* 48(5): 469-488.
- Resl, P., K. Schneider, M. Westberg, C. Printzen, Z. Palice, G. Thor, A. Fryday, H. Mayrhofer & T. Spribille. 2015. Diagnostics for a troubled backbone: testing topological hypotheses of trapelioid lichenized fungi in a large-scale phylogeny of Ostropomycetidae (Lecanoromycetes). *Fungal Diversity* 73: 239-258.
- Richardson, D. H. S., Z. Lucas & F. Anderson. 2010. The lichen flora of Sable Island, Nova Scotia: its past, present and likely future statusfull access. *The Bryologist* 112: 558-571.
- Rico, V. J., V. Calatayud & M. Giralt. 2003. *Buellia tesserata* and *Dimelaena radiata*, two closely related species. *Lichenologist* 35: 117-124.
- Rikkinen, J. 1998. *Chaenotheca olivaceorufa* (Caliciales) new to North America. *The Bryologist* 101: 558-559.
- Rikkinen, J. 1999. Two new species of resinicolous *Chaenothecopsis* (Mycocaliciaceae) from western North America. *The Bryologist* 102: 366-369.
- Rikkinen, J. 2003a. *Chaenothecopsis nigripunctata*, a remarkable new species of resinicolous Mycocaliciaceae from western North America. *Mycologia* 95(1): 98-103.
- Rikkinen, J. 2003b. New resinicolous ascomycetes from beaver scars in western North America. *Annales Botanici Fennici* 40: 443-450.
- Rivas Plata, E., R. Lücking & H. T. Lumbsch. 2012. Molecular phylogeny and systematics of the *Ocellularia* clade (Ascomycotga: Ostropales: Graphidaceae). *Taxon* 61(6): 1161-1179.
- Rodriguez Flakus, P. & C. Printzen. 2014. *Palicella*, a new genus of lichenized fungi and its phylogenetic position within Lecanoraceae. *Lichenologist* 46(4): 535-552.
- Roemer, J, T. H. Nash, III, H. T. Lumbsch & M. I. Messuti. 2004. *Ochrolechia*, pp. 381-387. *In* T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region*, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Rosentreter, R. 1998. Notes on *Aspicilia reptans* complex, with descriptions of two new species, pp. 163-170. *In* M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.

- Ryan, B. D. 2004a. *Lignoscripta*, pp. 350-351. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Ryan, B. D. 2004b. *Xylographa*, pp. 612-616. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Ryan, B. D. & H. T. Lumbsch. 2007. *Topelia*, p. 398. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Ryan, B. D., H. T. Lumbsch, M. I. Messuti, C. Printzen, L. Śliwa & T. H. Nash III. 2004. *Lecanora*, pp. 176-286. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Ryan, B. D. & T. H. Nash III. 1991. *Lecanora* Sect. *Petrasterion* (lichenized Ascomycotina) in North America: Notes on the *L. novomexicana* complex (Subsect. *Pseudocorticatae*). Mycotaxon 41(1): 57-65.
- Ryan, B. D. & T. H. Nash III. 1997a. Placodioid taxa of Lecanoraceae sensu Zahlbr. (lichenized Ascomycotina) in North America: taxa excluded from *Lecanora* subg. *Placodium*. Nova Hedwigia 64: 393-420.
- Ryan, B. D. & T. H. Nash III. 1997b. Systematics of *Lecanora* subgenus *Placodium* (lichenized Ascomycotina) in North America: an overview, with keys. Nova Hedwigia 64: 111-127.
- Ryan, B. D. & A. Tehler. 2004. *Lecanactis*, pp. 141-143, in T. H. Nash, III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe.
- Ryan, B. D. & E. Timdal. 2002. *Solenopsora*, pp. 462-465. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Ryan, B. D. & E. Timdal 2011. Validation of two names in *Solenopsora* (Catillariaceae). Bibliotheca Lichenologica 106: 289-290.
- Saag, L., K. Mark, A. Saag & T. Randlane. 2014. Species delimitation in the lichenized fungal genus *Vulpicida* (Parmeliaceae, Ascomycota) using gene concatenation and coalescent-based species tree approaches. American Journal of Botany 101(12): 2169-2182.
- Safranek, W. W. & R. Lücking. 2005. *Gyalectidium floridense*, a new foliicolous lichen from the southeastern United States. The Bryologist 108: 295-297.
- Sanders, W. B. & A. de los Ríos. 2015. Structure and in situ development of the microlichen *Gyalectidium paolae* (Gomphillaceae, Ascomycota), an overlooked colonist on palm leaves in southwest Florida. American Journal of Botany 102(9): 1403-1412.
- Sanders, W. B. & R. Lücking. 2015. Three new species of foliicolous Gomphillaceae (lichen-forming ascomycetes) from southern Florida. The Bryologist 118(2): 170-177.
- Santesson, R. 1993. The Lichens and Lichenicolous Fungi of Sweden and Norway. SBT-förlaget, Lund. 240 pages.
- Santesson, R., R. Moberg, A. Nordin, T. Tønsberg & O. Vitikainen 2004. Lichen-forming and Lichenicolous Fungi of Fennoscandia. Museum of Evolution, Uppsala University, Uppsala, Sweden. 359 pages.
- Savić, S. & L. Tibell. 2008. The lichen genus *Henrica* (Verrucariaceae, Eurotiomycetes) in northern Europe. Nordic Journal of Botany 26: 237-247.
- Savić, S. & L. Tibell. 2009. Taxonomy and species delimitation in *Sporodictyon* (Verrucariaceae) in Northern Europe and the adjacent Arctic - reconciling molecular and morphological data. Taxon 58: 585-605.
- Schmitt, I., J. D. Fankhauser, K. Sweeney, T. Spribille, K. Kalb & H. T. Lumbsch. 2010. Gyalectoid *Pertusaria* species form a sister-clade to *Coccotrema* (Ostropomycetidae, Ascomycota) and comprise the new lichen genus *Gyalectaria*. Mycology 1: 75-83.
- Schmitt, I., H. T. Lumbsch & C. Bratt. 2006. Two new brown-spored species of *Pertusaria* from southwestern North America. Lichenologist 38(5): 411-416.
- Schmitt, I., J. Otte, S. Parnmen, A. D. Sadowska-Deś, R. Lücking & H. T. Lumbsch. 2012. A new circumscription of the genus *Varicellaria* (Pertusariales, Ascomycota). MycoKeys 4: 23-36.
- Schmull, M., J. Miądlikowska, M. Pelzer, E. Stocker-Wörgötter, V. Hofstetter, E. Fraker, B. P. Hodkinson, V. Reeb, M. Kukwa, H. T. Lumbsch, F. Kauff & F. Lutzoni. 2011. Phylogenetic affiliations of members of the heterogeneous lichen-forming fungi of the genus *Lecidea* sensu Zahlbruckner (Lecanoromycetes, Ascomycota). Mycologia 103(5): 983-1003.
- Schmull, M. & T. Spribille. 2005. *Schaereria dolodes* (Nyl. ex Hasse) Schmull & T. Sprib.: a second corticolous species in the genus. Lichenologist 37: 527-533.
- Scholz, P. 1998. *Phacopsis doerfeltii*, sp. nov., and two other interesting lichenicolous fungi from Canada [*Phacopsis doerfeltii*, sp. nov., und zwei weitere bemerkenswerte lichenicole Pilze aus Kanada]. Sauteria 9: 37-42.
- Scholz, P. 2000. Katalog der Flechten und flechtenbewohnenden Pilze Deutschlands. Schriftenreihe für Vegetationskunde 31: 1-298.
- Schultz, M. 2002a. *Anema*, pp. 97-98. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.

- Schultz, M. 2002b. *Digitothyrea*, pp. 171-173. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Schultz, M. 2002c. *Gloeoheppia*, pp. 202-203. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Schultz, M. 2002d. *Lemmopsis*, pp. 261-262. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Schultz, M. 2002e. *Stromatella*, pp. 475-476. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Schultz, M. 2002f. *Synalissa*, pp. 476-477. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Schultz, M. 2005. An overview of *Lichinella* in the southwestern United States and northwestern Mexico, and the new species *Lichinella granulosa*. The Bryologist 108: 567-590.
- Schultz, M. 2006. *Pterygiopsis cava* and *P. mutabilis* (Lichinaceae), two new species from southwestern United States and northwestern Mexico. The Bryologist 109: 68-79.
- Schultz, M. 2007a. *Leprocollema*, pp. 232-233. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Schultz, M. 2007b. On the identity of *Anema dodgei*, *Psorotichia segregata* and *Psorotichia squamulosa*, three misunderstood cyanolichens from the southwestern United States. The Bryologist 110: 286-294.
- Schultz, M. 2007c. *Psorotichia*, pp. 279-284. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Schultz, M. 2007d. *Pyrenopsis*, pp. 286-287. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Schultz, M. 2009. Chasing small cyanolichens. Bulletin of the California Lichen Society 16(2): 34-37.
- Schultz, M. & B. Büdel. 2005. *Phloeopeccania anemoides*, a new lichen species from Baja California Sur and Sinaloa, Mexico. The Bryologist 108: 520-525.
- Schultz, M., C. Printzen & C. Scheidegger. 2000. *Harpidium nashii* sp. nov., a new species and a genus new to North America. The Bryologist 103: 802-805.
- Seavey, F. 2009. *Cryptothecia evergladensis* sp. nov. (Arthoniaceae), a new lichen species from Everglades National Park, Florida. Opuscula Philolichenum 7: 49-54.
- Seavey, F. 2010. Rediscovery of *Cladonia cinerella* Ahti (Cladoniaceae) in Everglades National Park. The Bryologist 113: 739-741.
- Seavey, F. & J. Seavey. 2011. *Calopadia schomerae* (Pilocarpaceae), a new lichen from Everglades National Park. Opuscula Philolichenum 9: 39-43.
- Seavey, F. & J. Seavey. 2012. *Caloplaca lecanorae* (Teloschistaceae), a new lichenicolous lichen and several additions to the North American lichenized mycota from Everglades National Park. Bryologist 115(2): 322-328.
- Seavey, F. & J. Seavey. 2014a. Four new species and sixteen new lichen records for North America from Everglades National Park. The Bryologist 117(4): 395-404.
- Seavey, F. & J. Seavey. 2014b. New additions to the lichen genus *Enterographa* (Roccellaceae) from Everglades National Park including an updated key. Lichenologist 46(1): 83-93.
- Seavey, F. & J. Seavey. 2015. Three new *Stirtonia* from Everglades National Park with a key to neotropical species. Lichenologist 47(1): 1-7.
- Seavey, F., J. Seavey, J. Gagnon, J. Guccion, B. Kaminsky, J. Pearson, A. Podaril & B. Randall. 2017. The lichens of Dagny Johnson Key Largo Hammock Botanical State Park, Key Largo, Florida, USA. Bulletin of the Florida Museum of Natural History 53(5): 201-268.
- Seavey, F., J. Seavey, J. E. Hernández M. & R. Lücking. 2014. Three new *Opegrapha* species (Roccellaceae, Arthoniales) and several additions to the North American lichen mycota from Everglades National Park. The Bryologist 117(1): 62-71.
- Selva, S. B. 2004. *Coniocybe gracilescens* and species of *Sphinctrina* with 1-septate spores. Symbolae Botanicae Upsalienses 34: 19-23.
- Selva, S. B. 2010. New and interesting calicioid lichens and fungi from eastern North America. The Bryologist 113: 272-276.
- Selva, S. B. 2013. The calicioid lichens and fungi of the Acadian Forest ecoregion of northeastern North America, I. New species and range extensions. The Bryologist 116(3): 248-256.
- Selva, S. B. 2014. The calicioid lichens and fungi of the Acadian Forest ecoregion of northeastern North America, II. The rest of the story. The Bryologist 117(4): 336-367.
- Selva, S. B. & L. Tibell. 1999. Lichenized and non-lichenized calicioid fungi from North America. The Bryologist 102: 377-397.
- Selva, S. B. & H. Tuovila. 2016. Two new resinicolous mycocalicioid fungi from the Acadian Forest: one new to science, the other new to North America. The Bryologist 119(4): 417-422.

- Sérusiaux, E., P. Diederich, A. M. Brand & P. van den Boom. 1999. New or interesting lichens and lichenicolous fungi from Belgium and Luxembourg. VIII [Lichens et champignons nouveaux ou intéressants pour la flore de la Belgique et du G.-D. de Luxembourg. VIII]. *Lejeunia* 162: 1-95.
- Sheard, J. W. 1995. Disjunct distributions of some North American, corticolous, vegetatively reproducing *Rinodina* species (Physciaceae, lichenized Ascomycetes) [Die disjunkte Verbreitung einiger nordamerikanischer corticoler, sich vegetativ verbreitender Arten der Gattung *Rinodina* (Physciaceae, lichenisierte Ascomyceten)]. *Herzogia* 11: 115-132.
- Sheard, J. W. 1998. *Rinodina riparia* (lichenized Ascomycetes, Physciaceae), a new corticolous species from North America, pp. 37-40. In M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, New York.
- Sheard, J. W. 2004. *Rinodina*, pp. 467-502. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2*. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Sheard, J. W. 2010. The lichen genus *Rinodina* (Ach.) Gray (Lecanoromycetidae, Physciaceae) in North America, North of Mexico. NRC Research Press, Ottawa, Ontario, Canada, 246 pp.
- Sheard, J. W. 2011. *Rinodina pityrea* recorded for the first time from North America. *Bibliotheca Lichenologica* 106: 291-295.
- Sheard, J. W., K. Knudsen, H. Mayrhofer & C. A. Morse. 2011. Three new species of *Rinodina* (Physciaceae) and a new record from North America. *The Bryologist* 114(3): 453-465.
- Sheard, J. W., J. C. Lendemer, T. Spribille, G. Thor & T. Tønsberg. 2012. Further contributions to the genus *Rinodina* (Physciaceae, Lecanoromycetidae): two species new to science and a new record for the Canadian High Arctic. *Herzogia* 25 (2): 125-143.
- Sheard, J. W., J. C. Lendemer & E. A. Tripp. 2008. *Buellia japonica* (Physciaceae), a new lichen record for North America. *The Bryologist* 111(1): 124-127.
- Sheard, J. W. & P. F. May. 1997. A synopsis of the species of *Amandinea* (lichenized Ascomycetes, Physciaceae) as presently known in North America. *The Bryologist* 100: 159-169.
- Sheard, J. W. & H. Mayrhofer. 2002. New species of *Rinodina* (Physciaceae, lichenized Ascomycetes) from western North America. *The Bryologist* 105: 645-672.
- Sheard, J. W., B. McCune & T. Tønsberg. 2014. A new corticolous species of *Rinodina* (Physciaceae) and two interesting range extensions for species collected from Katmai National Park, Alaska. *The Bryologist* 117(3): 253-258.
- Sheard, J. W., A. K. Ezhkin, I. A. Galanina, D. Himelbrant, E. Kuznetsova, A. Shimizu, I. Stepanchikova, G. Thor, T. Tønsberg, L. S. Yakovchenko & T. Spribille. 2017. The lichen genus *Rinodina* (Physciaceae, Caliciales) in northeastern Asia. *Lichenologist* 49(6): 617-672.
- Sierk, H. A. 1964. The genus *Leptogium* in North America north of Mexico. *The Bryologist* 67: 245-317.
- Sikaroodi, M., J. D. Lawrey, D. L. Hawksworth & P. T. DePriest. 2001. The phylogenetic position of selected lichenicolous fungi: *Hobsonia*, *Illosporium*, and *Marchandiomyces*. *Mycological Research* 105: 453-460.
- Śliwa, L. 2007a. *Lecanora semipallida*, the correct name for *L. xanthostoma*, and a reappraisal of *L. flotoviana* (Lecanoraceae, Ascomycotina). *Polish Botanical Journal* 52(1): 71-79.
- Śliwa, L. 2007b. A revision of the *Lecanora dispersa* complex in North America. *Polish Botanical Journal* 52(1): 1-70.
- Søchting, U. 2004. *Caloplaca kamczatica* and *C. obesimarginata* sp. nov, two species of temperate, Pacific North America. *Symbolae Botanicae Upsalienses* 34: 399-403.
- Søchting, U. & M. Olech. 1995. The lichen genus *Caloplaca* in polar regions. *Lichenologist* 27(6): 463-471.
- Smith, A. L. 1926. A monograph of the British Lichens. A descriptive catalogue of the species in the department of Botany, British Museum. British Museum Natural History, London. viii + 497 pp.
- Søchting, U., I. Kärnefelt & S. Kondratyuk. 2002. Revision of *Xanthomendoza* (Teloschistaceae, Lecanorales) based on morphology, anatomy, secondary metabolites and molecular data. *Mitteilungen aus dem Institut für Allgemeine Botanik in Hamburg* 30-32: 225-240.
- Søchting, U. & T. Tønsberg. 1997. *Caloplaca xanthostigmoidea* (Räs.) Zahlbr., a common lichen in cool regions of the northern hemisphere, pp. 247-253. In L. Tibell & I. Hedberg (eds.), *Lichen Studies Dedicated to Rolf Santesson*. *Symbolae Botanicae Upsalienses* 32. Acta Universitatis Upsaliensis, Uppsala.
- Sohrabi, M., S. D. Leavitt, V. J. Rico, M. G. Halici, G. Shrestha & S. Stenroos. 2013a. *Teuvoa*, a new lichen genus in Megasporaceae (Ascomycota: *Pertusariales*), including *Teuvoa junipericola* sp. nov. *Lichenologist* 45(3): 347-360.
- Sohrabi, M., S. Stenroos, F. Högnabba, A. Nordin & B. Owe-Larsson. 2011. *Aspicilia rogeri* sp. nov. (Megasporaceae) and other allied vagrant species in North America. *The Bryologist* 114: 178-189.
- Sohrabi, M., S. Stenroos, L. Myllys, U. Søchting, T. Ahti & J. Hyvönen. 2013b. Phylogeny and taxonomy of the 'manna lichens.' *Mycological Progress* 12(2): 231-269.
- Šoun, J., J. Vondrák, U. Søchting, P. Hrouzek, A. Khodosovtsev & U. Arup. 2011. Taxonomy and phylogeny of the *Caloplaca cerina* group in Europe. *Lichenologist* 43: 113-135.
- Sparrius, L. B. 2004a. *Dirina calcicola*, a new lichen species from Florida, U.S.A. *The Bryologist* 107: 521-523.

- Sparrius, L. B. 2004b. A Monograph of *Enterographa* and *Sclerophyton*. Bibliotheca Lichenologica 89: 1-141.
- Sparrius, L. & C. R. Björk. 2008. *Enterographa oregonensis* (Roccellaceae), a new foliicolous species from the northwest coast of North America. The Bryologist 111(3): 487-489.
- Spjut, R. W. 1996. *Niebla* and *Vermilacinia* (Ramalinaceae) from California and Baja California. Sida, Botanical Miscellany 14: 1-208.
- Spribille, T. & C. R. Björk. 2008. New records and range extensions in the North American lignicolous lichen flora. Mycotaxon 105: 455-468.
- Spribille, T., C. R. Björk, S. Ekman, J. A. Elix, T. Goward, C. Printzen, T. Tønsberg, and T. Wheeler. 2009. Contributions to an epiphytic lichen flora of northwest North America: I. Eight new species from British Columbia inland rain forests. The Bryologist 112: 109-137.
- Spribille, T., B. Goffinet, B. Klug, L. Muggia, W. Obermayer & H. Mayrhofer 2011a. Molecular support for the recognition of the *Mycoblastus fucatus* group as the new genus *Violella* (Tephromelataceae, Lecanorales). Lichenologist 43(5): 445-466.
- Spribille, T. & M. Hauck. 2003. *Pyrrhospora gowardiana*, a new montane lichen from western North America (Lecanoraceae, lichenized Ascomycetes). The Bryologist 106: 560-564.
- Spribille, T., P. M. Jørgensen, M. Schultz & I. Houde. 2007. *Santessoniella saximontana*, a new lichen species from British Columbia. Bibliotheca Lichenologica 96: 287-297.
- Spribille, T., B. Klug & H. Mayrhofer. 2011b. A phylogenetic analysis of the boreal lichen *Mycoblastus sanguinarius* (Mycoblastaceae, lichenized Ascomycota) reveals cryptic clades correlated with fatty acid profiles. Molecular Phylogenetics and Evolution 59: 603-614.
- Spribille, T. & L. Muggia. 2012. Expanded taxon sampling disentangles evolutionary relationships and reveals a new family in Peltigerales (Lecanoromycetidae, Ascomycota). Fungal Diversity (in press).
- Spribille, T., S. Pérez-Ortega, T. Tønsberg, and D. Schirokauer. 2010. Lichens and lichenicolous fungi of the Klondike Gold Rush National Historic Park, Alaska, in a global biodiversity. The Bryologist 113: 439-515.
- Spribille, T. & C. Printzen. 2007. *Lecidea rubrocastanea*, a new lichen species from conifer bark and wood in interior western North America (Lecanorales, lichenized ascomycetes). Lichenologist 39: 339-347.
- Spribille, T., P. Resl, T. Ahti, S. Pérez-Ortega, T. Tønsberg, H. Mayrhofer & H. T. Lumbsch. 2014a. Molecular systematics of the wood-inhabiting, lichen-forming genus *Xylographa* (Baeomycetales, Ostropomycetidae) with eight new species. Symbolae Botanicae Upsalienses 37(1): 1-87.
- Spribille, T. & T. Tønsberg. 2007. *Mycoblastus marginatus*, a new synonym for *M. affinis* (Mycoblastaceae, lichenized Ascomycota). Mycotaxon 100: 105-107.
- Spribille, T., T. Tønsberg, E. Stabentheiner & L. Muggia. 2014b. Reassessing evolutionary relationships in the filamentous cyanolichen genus *Spilonema* (Peltigerales, Lecanoromycetes). Lichenologist 46(3): 373-388.
- Staiger, B. 2002. Die Flechtenfamilie Graphidaceae. Studien in Richtung einer natürlicheren Gliederung. Bibliotheca Lichenologica 85: 1-526.
- Staiger, B. & K. Kalb. 1995. *Haematomma*-studien. I. Die Flechtengattung *Haematomma*. Bibliotheca Lichenologica 59: 1-198.
- Staiger, B. & K. Kalb. 1999. *Acanthothecis* and other graphidioid lichens with warty periphysoids or paraphysis-tips. Mycotaxon 73: 69-134.
- Staiger, B. & K. Kalb. 2004. *Fissurina*, pp. 109-110. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Stenroos, S. 1989. Taxonomy of the *Cladonia coccifera* group. 1. Annales Botanici Fennici 26: 157-168.
- Stirton, J. 1875. Lichens British and foreign. Transactions of the Glasgow Society of Field Naturalists, 1875: 85-95.
- Stone, D. F., J. W. Hinds, F. L. Anderson & J. C. Lendemer. 2016. A revision of the *Leptogium saturninum* group in North America. Lichenologist 48(5): 387-421.
- Stone, D. & B. McCune. 2010. *Collema quadrifidum*, a new epiphytic lichen species from the Pacific Northwest of the United States. North American Fungi 5(2): 1-6.
- Stone, D. & A. Ruchty. 2008. *Leptogium siskiyouensis*, a new epiphytic lichen species from the Pacific Northwest of the United States. North American Fungi 3(2): 1-7.
- Suija, A., A. de los Ríos & S. Pérez-Ortega. 2015. A molecular reappraisal of *Abrothallus* species growing on lichens of the order Peltigerales. Phytotaxa 195(3): 201-226.
- Suija, A., S. Pérez-Ortega & D. L. Hawksworth. 2011. *Abrothallus halei* (Ascomycota, incertae sedis), a new lichenicolous fungus on *Lobaria* species in Europe and North America. Lichenologist 43: 51-55.
- Sundin, R. & A. Tehler. 1996. The genus *Dendrographa* (Roccellaceae). The Bryologist 99: 19-31.
- Sweat, K. G., W. A. Iselin, S. T. Bates, and T. H. Nash III. 2004. Lichens of Parashant National Monument, Arizona: A Preliminary Study. Journal of the Arizona-Nevada Academy of Science 37(2): 85-90.
- Syrek, M. & M. Kukwa. 2008. Taxonomy of the lichen *Cladonia rei* and its status in Poland. Biologia 63: 493-497.
- Talbot, S. S., S. L. Talbot, J. W. Thomson & W. B. Schofield. 2000. Lichens of Izembek National Wildlife Refuge, westernmost Alaska Peninsula. The Bryologist 103: 379-389.
- Tavares, I. I. 1997. A preliminary key to *Usnea* in California. Bulletin of the California Lichen Society 4: 19-23.

- Tavares, I. I. & W. B. Sanders. 1998. Preliminary report on the short, apotheciate taxa of *Usnea* in the southwestern United States, pp. 171-185. In M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), Lichenographia Thomsoniana: North American Lichenology in Honor of John W. Thomson. Mycotaxon Ltd.
- Tavares, I., S. Tucker, R. Moe & D. Wright (Eds.). 1997. Bulletin of the California Lichen Society. Vol. 4. No. 1. Summer 1997. 18 pages.
- Tehler, A. 1993. The genus *Schismatomma* (Arthoniales, Euascomycetidae). Opera Botanica 118: 1-38.
- Tehler, A. 1996. *Syncesia* (Arthoniales, Euascomycetidae). Flora Neotropica, 74. New York Botanical Garden (for Organization for Flora Neotropica), New York. 48 pages.
- Tehler, A. 2002a. On the typification of two misunderstood *Roccella* (lichenized fungi) names, *R. tinctoria* and *R. fucoides*. Taxon 51: 787-790.
- Tehler, A. 2002b. *Roccella*, pp. 451-454. In T. H. Nash, III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Lichens Unlimited, Arizona State University.
- Tehler, A. 2002c. *Schismatomma*, pp. 455-457. In T. H. Nash, III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Lichens Unlimited, Arizona State University.
- Tehler, A. 2003. *Roccella phycopsis* the correct name for *R. fucoides* (lichenized fungi). Taxon 52: 621.
- Tehler, A. 2006. *Roccella gracilis*, the correct name for *R. peruensis* and *R. humboldtiana* (lichenized fungi, Roccellaceae). Taxon 55: 785-787.
- Tehler, A., Å. Dahlkild, P. Eldenäs & G. B. Feige. 2004. The phylogeny and taxonomy of Macaronesian, European and Mediterranean *Roccella* (Roccellaceae, Arthoniales). Symbolae Botanicae Upsaliensis 34: 405-428.
- Tehler, A., D. Ertz & M. Irestedt. 2013. The genus *Dirina* (Roccellaceae, Arthoniales) revisited. Lichenologist 45 (4): 427-476.
- Tehler, A., K. Lohtander, L. Myllys & R. Sundin. 1997. On the identity of the genera *Hubbsia* and *Reinkella* (Roccellaceae), pp. 255-265. In L. Tibell & I. Hedberg (eds.), Lichen Studies Dedicated to Rolf Santesson. Symbolae Botanicae Upsalienses 32. Acta Universitatis Upsaliensis, Uppsala.
- Thell, A., J.A. Elix, and U. Söchting. 2009. *Xanthoparmelia lineola* s. l. in Australia and North America. Bibliotheca Lichenologica 99:393-404.
- Thell, A. & T. Goward. 1996. The new Cetrarioid genus *Kaernefeltia* and related groups in the Parmeliaceae (lichenized Ascomycotina). The Bryologist 99: 125-136.
- Thell, A., T. Goward, T. Randle, E. I. Kärnefelt & A. Saag. 1995. A revision of the North American lichen genus *Ahtiana* (Parmeliaceae). The Bryologist 98: 596-605.
- Thell, A., F. Högnabba, J. A. Elix, T. Feuerer, I. Kärnefelt, L. Myllys, T. Randle, A. Saag, S. Stenroos, T. Ahti & M. R. D. Seaward. 2009. Phylogeny of the cetrarioid core (Parmeliaceae) based on five genetic markers. Lichenologist 41(5): 489-511.
- Thomson, J. W. 1963. The Lichen Genus *Physcia* in North America. Beihefte zur Nova Hedwigia. viii + 172 pages. 47 maps. 47 fig. on 27 pl.
- Thomson, J. W. 1967. The Lichen Genus *Cladonia* in North America. University of Toronto Press. xi + 172 pages.
- Thomson, J. W. 1997. American Arctic Lichens. 2. The Microlichens. The University of Wisconsin Press, Madison. 675 pages.
- Thor, G. 1991. The placement of *Chiodecton sanguineum* (syn. *Chiodecton rubrocinctum*), and *Cryptothecia striata* sp. nov. The Bryologist 94: 278-283.
- Thorn, R. G., D. W. Malloch & J. Ginns. 1998. *Leucogyrophana lichenicola* sp. nov., and a comparison with basidiomes and cultures of the similar *Leucogyrophana romellii*. Canadian Journal of Botany 76: 686-693.
- Tibell, L. 1996. *Phaeocalicium* (Mycocaliciaceae, Ascomycetes) in northern Europe. Annales Botanici Fennici 33: 205-221.
- Tibell, L. 2001. *Cybebe gracilentia* in an ITS/5.8S rDNA based phylogeny belongs to Chaenotheca (Coniocybaceae, lichenized Ascomycetes). Lichenologist 33: 519-525.
- Tibell, L. 2007. *Mycocalicium*, pp. 250-254. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Tibell, L. & A. Koffman. 2002. *Chaenotheca nitidula*, a new species of calicioid lichen from northeastern North America. The Bryologist 105: 353-357.
- Tibell, L. & B. D. Ryan. 2004. *Microcalicium*, pp. 669-672. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Tibell, S. & L. Tibell. 2015. Two new species of *Atla* (Verrucariaceae). Lichenologist 47(2): 93-98.
- Timdal, E. 2001. *Hypocenomyce oligospora* and *H. sierrae*, two new lichen species. Mycotaxon 77: 445-453.
- Timdal, E. 2002a. *Psora*, pp. 418-430. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Timdal, E. 2002b. Three squamulose species of *Rimularia* (Lecanorales). The Bryologist 105: 219-224.
- Timdal, E. 2002c. *Toninia*, pp. 488-501. In T. H. Nash III, B. D. Ryan, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. I. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Timdal, E. 2007. *Romularia*, pp. 287-289. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.

- Timdal, E. 2008. Studies on *Phyllopsora* (Ramalinaceae) in Peru. *Lichenologist* 40: 337-362.
- Timdal, E. 2011. The lichen genus *Phyllopsora* (Ramalinaceae) in the West Indies. *Bibliotheca Lichenologica* 106: 319-351.
- Timdal, E. & T. Tønsberg. 2006. *Psoroma paleaceum* comb. nov. the only hairy *Psoroma* in northern Europe. *Graphis Scripta* 18: 54-57.
- Timdal, E. & T. Tønsberg. 2012. *Cladonia straminea*, the correct name for *C. metacorallifera*. *Graphis Scripta* 24(2): 33-35.
- Tønsberg, T. 1997 [1998]. Additions to the lichen flora of North America VI. *The Bryologist* 100: 522-524.
- Tønsberg, T. 1999a. Additions to the lichen flora of North America VII. Some species found on Waadah Island, Washington. *The Bryologist* 102: 133-134.
- Tønsberg, T. 1999b. *Pseudocyphellaria arvidssonii* new to Africa and *P. mallota* new to North America. *The Bryologist* 102: 128-129.
- Tønsberg, T. 2002. Additions to the lichen flora of North America XI. *The Bryologist* 105: 122-125.
- Tønsberg, T. 2004a. *Chrysothrix*, pp. 62-63. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Tønsberg, T. 2004b. *Lepraria*, pp. 322-329. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited*, Arizona State University, Tempe, Arizona.
- Tønsberg, T. 2007. Notes on the lichen genus *Lepraria* in Great Smoky Mountains National Park, southeastern North America: *Lepraria lanata* and *L. salazinica* spp. nov. *Opuscula Philolichenum* 4: 51-54.
- Tønsberg, T. & B. Coppins. 2000. Additions to the lichen flora of North America IX. *Micarea alabastrites* and *M. synotheoides*. *Evansia* 17: 135-136.
- Tønsberg, T. & T. Goward. 2001. *Sticta oroborealis* sp. nov. and other Pacific North American lichens forming dendriscocauloid cyanotypes. *The Bryologist* 104: 12-23.
- Tønsberg, T. & T. Goward. 2016. *Cliostomum spribillei* (Ramalinaceae, lichenized Ascomycetes), a new species from western North America. *North American Fungi* 11(5): 1-7.
- Tønsberg, T. & A. Henssen. 1999. Additions to the lichen flora of North America VIII. *Santessoniella grisea* new to North America. *Evansia* 16: 184.
- Tønsberg, T. & B. McCune. 2001. Additions to the lichen flora of North America X. *Buellia arborea*. *Evansia* 18: 128.
- Tønsberg, T., A. Nordin & L. Tibell. 2012. *Amandinea lignicola*, a new species from the Pacific coast of North America. *Graphis Scripta* 24(2): 60-64.
- Tønsberg, T. & C. Williams. 2006. *Arthothelium norvegicum* in North America. *Evansia* 23: 80-81.
- Tretiach, M. & M. Schultz. 2007. *Peccania*, pp. 266-270. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited*, Arizona State University, Tempe.
- Triebel, D., M. Wedin & G. Rambold. 1997. The genus *Scutula* (lichenicolous ascomycetes, Lecanorales): species on the *Peltigera canina* and *P. horizontalis* groups, pp. 323-337. In L. Tibell & I. Hedberg (eds.), *Lichen Studies Dedicated to Rolf Santesson. Symbolae Botanicae Upsalienses* 32. Acta Universitatis Upsaliensis, Uppsala.
- Tripp, E. A. & J. C. Lendemer. 2010. The genus *Platygramme* in North America. *Castanea* 75: 388-393.
- Tripp, E. A. & J. C. Lendemer. 2015. *Candelariella clarkia* and *Lecidea hoganii*: two lichen species new to science from White Rocks Open Space, City of Boulder, Colorado. *The Bryologist* 118(2): 154-163.
- Tripp, E. A., J. C. Lendemer & R. C. Harris. 2010. Resolving the genus *Graphina* Müll. Arg. in North America: new species, new combinations, and treatments for *Acanthothecis*, *Carbacanthographis*, and *Diorygma*. *Lichenologist* 42(1): 55-71.
- Truong, C., J. M. Rodriguez & P. Clerc. 2013. Pendulous *Usnea* species (*Parmeliaceae*, lichenized Ascomycota) in tropical South America and the Galapagos. *Lichenologist* 45 (4): 505-543.
- Tucker, S. 1981. Checklist of Louisiana lichens. *Proceedings of the Louisiana Academy of Sciences* 44: 58-70.
- Tucker, S. 2014. Catalog of lichens, lichenicoles and allied fungi in California (revised edition). *Constancea* 85 [<http://ucjeps.berkeley.edu/constancea/85/tucker.html>].
- Tucker, S. C. & W. P. Jordan. 1979. A catalog of California lichens. *Wasmann Journal of Biology* 36: 1-105.
- Tucker, S. C., K. Knudsen & J. Robertson. 2006. Additional lichen collections from Pinnacles National Monument, San Benito County, California. *Bulletin of the California Lichen Society* 13: 6-9.
- Tucker, S. C. & B. D. Ryan. 2006. Revised catalog of lichens, lichenicoles, and allied fungi in California. *Constancea* 84: 1-275 + 1-52.
- Tuckerman, E. 1872. *Genera Lichenum: an Arrangement of the North American Lichens*. Edwin Nelson, Amherst. XV + 283 pp.
- Tuckerman, E. 1882. A synopsis of the North American lichens. Part. I. Comprising the *Parmeliacei*, *Cladoniei* and *Coenogoniei*. S.F. Cassino - Boston. XX + 262 pp.
- Tuckerman, E. 1888. A synopsis of the North American lichens. Part. II. Comprising the *Lecideacei*, and (in part) the *Graphidacei*. New Bedford, Massachusetts. 176 pp.

- Tuovila, H., P. Larsson & J. Rikkinen. 2011. Three resinicolous North American species of Mycocaliciales in Europe with a re-evaluation of *Chaenothecopsis oregana* Rikkinen. *Karstenia* 51: 37-49.
- Tuovila, H., J. Rikkinen & S. Huhtinen. 2012. Nomenclatural corrections in calicioid fungi. *Karstenia* 52(2): 73-74.
- van den Boom, P. P. G. 2004. *Toninia*, pp. 708-709. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- van den Boom, P. P. G. & A. M. Brand. 2008. Some new *Lecanora* species from western and central Europe, belonging to the *L. saligna* group, with notes on related species. *The Lichenologist* 40: 465-497.
- van den Boom, P. P. G. & J. A. Elix. 2005. Notes on *Halecania* species, with descriptions of two new species from Asia. *Lichenologist* 37: 237-246.
- van den Boom, P. P. G. & B. D. Ryan. 2004a. *Halecania*, pp. 131-133. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- van den Boom, P. P. G. & B. D. Ryan. 2004b. *Lecania*, pp. 143-171. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- van den Boom, P. P. G., H. Sipman & J. A. Elix. 2007. *Protoparmelia*, pp. 392-393. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- van Herk, K. & A. Aptroot. 2000. The sorediate *Punctelia* species with lecanoric acid in Europe. *Lichenologist* 32: 233-246.
- Vänska, H. 1984. The identity of the lichens *Lecanora frustulosa* and *L. argopholis*. *Annales Botanici Fennici* 21: 391-402.
- Veldkamp, J. F. 2004. *Bilimbia* (Lichenes) resurrected. *Lichenologist* 36: 191-195.
- Velmala, S., L. Myllys, T. Goward, H. Holien & P. Halonen. 2014. Taxonomy of *Bryoria* section *Implexae* (Parmeliaceae, Lecanoromycetes) in North America and Europe, based on chemical, morphological and molecular data. *Annales Botanici Fennici* 51: 345-371.
- Velmala, S., L. Myllys, P. Halonen, T. Goward, & T. Ahti. 2009. Molecular data show that *Bryoria fremontii* and *B. tortuosa* (Parmeliaceae) are conspecific. *Lichenologist* 41: 231-242.
- Villella, J., S. Loring & B. McCune. 2013. The lichens of southwest Oregon's Illinois River Watershed. *Bulletin of the California Lichen Society* 20(1): 33-48.
- Villella, J. & S. Sheehy. 2015. Additional sites of *Umbilicaria hirsute* from southwestern Oregon, and the associated lichenicolous fungus *Arthonia circinata* new to North America. *Bulletin of the California Lichen Society* 22(1): 19-22.
- Vitikainen, O. 1994. Taxonomic revision of *Peltigera* (lichenized Ascomycotina) in Europe. *Acta Botanica Fennica* 152: 1-96.
- Vitikainen, O. 2004. *Peltigera*, pp. 389-399. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.
- Vitikainen, O. 2006. *Peltigera tartarea*, a new species from Arctic America. *Journal of the Hattori Botanical Laboratory* 100: 853-854.
- Vitikainen, O., T. Ahti, M. Kuusinen, S. Lommi & T. Ulvinen. 1997. Checklist of lichens and allied fungi of Finland. *Norrlinia* 6: 1-123.
- Vondrák, J., I. Frolov, E. A. Davydov, I. Urbanavichene, S. Chesnokov, I. Zhdanov, E. Muchnik, L. Konoreva, D. Himelbrant, & S. Tchabanenko. 2016. The extensive geographical range of several species of Teloschistaceae: evidence from Russia. *Lichenologist* 48(3): 171-189.
- Vondrák, J. P. Říha, O. Redchenko, O. Vondráková, P. Hrouzek & A. Khodosovtsev. 2011. The *Caloplaca crenulatella* species complex; its intricate taxonomy and description of a new species. *Lichenologist* 43(5): 467-481.
- Vondrák, J., J. Šoun, M. Z. Søgaard, U. Søchting & U. Arup. 2010. *Caloplaca phlogina*, a lichen with two facies; an example of infraspecific variability resulting in the description of a redundant species. *Lichenologist* 42: 685-692.
- Weber, W. A. & R. C. Wittman. 2000. The Colorado Catalog – Online Version. Catalog of the Colorado Flora: A Biodiversity Baseline. Lichens. (<http://cumuseum.colorado.edu/Research/Botany/Databases/catalog.html>).
- Wedin, M., F. Högnabba & T. Goward. 2009. A new species of *Sphaerophorus*, and a key to the family Sphaerophoraceae in western North America. *The Bryologist* 112: 368-374.
- Wedin, M., P. G. Ihlen & D. Triebel. 2007. *Scutula tuberculosa*, the correct name of the *Scutula* growing on *Solorina* spp., with a key to *Scutula* s. str. in the Northern Hemisphere. *Lichenologist* 39: 329-333.
- Wei, J.-C. & T. Ahti. 2002. *Cetradonia*, a new genus in the new family Cetradoniaceae (Lecanorales, Ascomycota). *Lichenologist* 34: 19-31.
- Westberg, M. 2004a. *Placomaronea*, pp. 418-419. In T. H. Nash III, B. D. Ryan, P. Diederich, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona.

- Westberg, M. 2004b. *Vezdaea rheocarpa* new to North America. Mycotaxon 89: 153-154.
- Westberg, M. 2007a. *Candelariella* (Candelariaceae) in western United States and northern Mexico: the 8-spored, lecanorine species. The Bryologist 110: 391-419.
- Westberg, M. 2007b. *Candelariella* (Candelariaceae) in western United States and northern Mexico: the polysporous species. The Bryologist 110: 375-390.
- Westberg, M. 2007c. *Candelariella* (Candelariaceae) in western United States and northern Mexico; the species with biatorine apothecia. The Bryologist 110: 365-374.
- Westberg, M. 2010. The identity of *Candelariella canadensis*. Lichenologist 42(1): 119-122.
- Westberg, M. & U. Arup. 2011. *Candelaria pacifica* sp. nova (Ascomycota, Candelariales) and the identity of *Candelaria vulgaris*. Bibliotheca Lichenologica 106: 353-364.
- Westberg, M., U. Arup & I. Kärnefelt. 2007. Phylogenetic studies in the Candelariaceae (lichenized Ascomycota) based on nuclear ITS DNA sequence data. Mycological Research 111: 1277-1284.
- Westberg, M., A. T. Crewe, O. W. Purvis & M. Wedin. 2011a. *Silobia*, a new genus for the *Acarospora smaragdula* complex (Ascomycota, Acarosporales) and a revision of the group in Sweden. Lichenologist 43: 7-25.
- Westberg, M., C. A. Morse & M. Wedin 2011b. Two new species of *Candelariella* and a key to the Candelariales (lichenized Ascomycetes) in North America. The Bryologist 114(2): 325-334.
- Wetmore, C. M. 1960. The lichen genus *Nephroma* in North and Middle America. Publications of the Museum, Michigan State University, Biol. Ser. 1: 369-452.
- Wetmore, C. M. 1967. Lichens of the Black Hills of South Dakota and Wyoming. Publ. Mus., Michigan State Univ., Biol. Ser. 3: 209-464.
- Wetmore, C. M. 1994. The lichen genus *Caloplaca* in North and Central America with brown or black apothecia. Mycologia 86: 813-838.
- Wetmore, C. M. 1996. The *Caloplaca sideritis* group in North and Central America. The Bryologist 99: 292-314.
- Wetmore, C. M. 1999. Four new species of *Caloplaca* from Mexico. The Bryologist 102: 99-103.
- Wetmore, C. M. 2001. The *Caloplaca citrina* group in North and Central America. The Bryologist 104: 1-11.
- Wetmore, C. M. 2003. The *Caloplaca squamosa* group in North and Central America. The Bryologist 106: 147-156.
- Wetmore, C. M. 2004a. The isidiate corticolous *Caloplaca* species in North and Central America. The Bryologist 107: 284-292.
- Wetmore, C. M. 2004b. The sorediate corticolous species of *Caloplaca* in North and Central America. The Bryologist 107: 505-520.
- Wetmore, C. M. 2007a. *Caloplaca*, pp. 179-220. In T. H. Nash, III, C. Gries & F. Bungartz (eds.), Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Wetmore, C. M. 2007b. Notes on *Caloplaca cerina* (Teloschistaceae) in North and Central America. The Bryologist 110: 798-807.
- Wetmore, C. M. 2009. New species of *Caloplaca* (Teloschistaceae) from North America. The Bryologist 112:379-386.
- Wetmore, C. M. & E. I. Kärnefelt. 1998. The lobate and subfruticose species of *Caloplaca* in north and central America. The Bryologist 101: 230-255.
- Wetmore, C. M. & E. I. Kärnefelt. 1999. What is *Caloplaca cinnabarina*? The Bryologist 102: 683-691.
- Widhelm, T. J., R. S. Egan, F. R. Bertoletti, M. J. Asztalos, E. Kraichak, S. D. Leavitt, & H. T. Lumbsch. 2016. Picking holes in traditional species delimitations: an integrative taxonomic reassessment of the *Parmotrema perforatum* group (Parmeliaceae, Ascomycota). Botanical Journal of the Linnean Society 182: 868-884.
- Wilhelm, G. S. 1998. The lichen flora of Chicago and vicinity: one hundred years of Lichenology. Erigenia 16: 3-36.
- Williams, C. B. & L. Tibell. 2008. *Calicium sequoiae*, a new lichen species from north-western California, USA. Lichenologist 40: 185-194.
- Will-Wolf, S. 1998. Lichens of Badlands National Park, South Dakota, USA, pp. 323-336. In M. G. Glenn, R. C. Harris, R. Dirig & M. S. Cole (eds.), *Lichenographia Thomsoniana*: North American Lichenology in Honor of John W. Thomson. Mycotaxon Ltd., Ithaca, New York.
- Wirth, M. & M. E. Hale, Jr. 1963. The lichen family Graphidaceae in Mexico. Contributions to the United States National Herbarium 36: 63-119.
- Wirth, M. & M. E. Hale, Jr. 1978. Morden-Smithsonian Expedition to Dominica: the lichens (Graphidaceae). Smithsonian Contributions to Botany 40: 1-64.
- Wirtz, N., C. Printzen & H. T. Lumbsch. 2008. The delimitation of Antarctic and bipolar species of neuropogonoid *Usnea* (Ascomycota, Lecanorales): a cohesion approach of species recognition for the *Usnea perpusilla* complex. Mycological Research 112: 472-484.
- Yakovchenko, L. S., J. Vondrák, Y. Ohmura, E. S. Korchikov, O. S. Vondrákova & E. A. Davydov. 2017. *Candelariella blastidiata* sp. nov. (Ascomycota, Candelariaceae) from Eurasia and North America, and a key for grey thalli *Candelariella*. Lichenologist 49(2): 117-126.
- Yoshimura, I. & A. J. Sharp. 1973. First record of *Anaptychia isidiza* in North America. Miscellanea Bryologica et Lichenologica 6: 85.
- Yuzon, J., C. Roux, J. C. Lendemer & C. Gueidan. 2014. Molecular phylogeny and taxonomy of the endolithic lichen genus *Bagliettoa* (Ascomycota : Verrucariaceae). Taxon 63(6): 1177-1192.
- Zahlbruckner, A. 1924. Catalogus Lichenum Universalis, vol. II. Gebrüder Borntraeger – Leipzig, Berlin.

- Zakeri, Z., P. K. Divakar & V. Otte. 2017. Taxonomy and phylogeny of *Aspiciliella*, a resurrected genus of Megasperaceae, including the new species *A. portosantana*. *Herzogia* 30: 166-176.
- Zhao, X., S. D. Leavitt, Z. T. Zhao, L. L. Zhang, U. Arup, M. Grube, S. Pérez-Ortega, C. Printzen, L. Śliwa, E. Kraichak, P. K. Divakar, A. Crespo & H. T. Lumbsch. 2016. Towards a revised generic classification of lecanoroid lichens (Lecanoraceae, Ascomycota) based on molecular, morphological and chemical evidence. *Fungal Diversity* 78: 293-304.
- Zhurbenko, M. 2007a. *Corticifraga santessonii* and *C. chugachiana* (Lecanoromycetes, Ascomycota), new species of lichenicolous fungi from the Holarctic. *Lichenologist* 39: 221-226.
- Zhurbenko, M. 2007b. A new species of *Unguiculariopsis* (Helotiales) on *Nephroma* from Alaska. *Mikologiya i Fitopatologiya* 41: 126-129.
- Zhurbenko, M. 2009a. Lichenicolous fungi and lichens from the Holarctic. Part II. *Opuscula Philolichenum* 7: 121-186.
- Zhurbenko, M. 2009b. Lichenicolous fungi and some lichens from the Holarctic. *Opuscula Philolichenum* 6: 87-120.
- Zhurbenko, M. P. 2009c. New and interesting lichenicolous hypocrealean fungi from the Northern Hemisphere. *Sydowia* 61(7): 177-188.
- Zhurbenko, M. 2010. Lichenicolous fungi and lichens growing on *Stereocaulon* from the Holarctic, with a key to the known species. *Opuscula Philolichenum* 8: 9-39.
- Zhurbenko, M. 2012. Lichenicolous fungi growing on *Thamnolia*, mainly from the Holarctic, with a worldwide key to the known species. *Lichenologist* 44(2): 147-177.
- Zhurbenko, M. P. 2013. Lichenicolous fungi and some allied lichens from the Canadian Arctic. *Opuscula Philolichenum* 12: 180-197.
- Zhurbenko, M. P. 2014. *Phaeospora catolechiae*, a lichenicolous fungus on *Catolechia wahlenbergii*, new to North America. *Opuscula Philolichenum* 13: 1-3.
- Zhurbenko, M. P. & V. Alstrup. 2004. Lichenicolous fungi on *Cladonia* mainly from the Arctic. *Symbolae Botanicae Upsalienses* 34: 477-499.
- Zhurbenko, M. P. & U. Braun. 2013. *Ameroconium cladoniae* gen. et sp. nov. and *Phoma psoromatis* sp. nov., new anamorphic lichenicolous fungi from the Holarctic. *Lichenologist* 45(5): 583-591.
- Zhurbenko, M. & F. J. A. Daniëls. 2003. New or rarely reported lichenicolous fungi and lichens from the Canadian Arctic. *Mycotaxon* 88: 97-106.
- Zhurbenko, M. & K. Dillman. 2010. *Polycoccum hymeniicola* comb. nov. (Dacampiaceae) and other interesting lichenicolous fungi from southeastern Alaska. *The Bryologist* 113: 260-266.
- Zhurbenko, M. P., M. Kukwa & M. Oset. 2009. *Roselliniella stereocaulorum* (Sordariales, Ascomycota), a new lichenicolous fungus from the Holarctic. *Mycotaxon* 109: 323-328.
- Zhurbenko, M. & G. Laursen. 2003. Lichenicolous fungi from central Alaska: new records and range extensions. *The Bryologist* 106: 460-464.
- Zhurbenko, M. P., G. A. Laursen & D. A. Walker. 2005. New and rare lichenicolous fungi and lichens from the North American Arctic. *Mycotaxon* 92: 201-212.
- Zhurbenko, M. P., V. Matveeva, C. Vonlanthen, D. A. Walker & M. K. Raynolds. 2006. Lichens from Ellef Ringnes Island, Canadian Arctic Archipelago. *Evansia* 23(3): 69-78.
- Zhurbenko, M. P. & R. Pino-Bodas. 2017. A revision of lichenicolous fungi growing on *Cladonia*, mainly from the Northern Hemisphere, with a worldwide key to the known species. *Opuscula Philolichenum* 16: 188-266.

Studies in Lichens and Lichenicolous Fungi – No. 21: Notes on *Lambliella caeca* and *L. fuscrosora*

JAMES C. LENDEMER¹ AND IRWIN M. BRODO²

ABSTRACT. – *Lambliella caeca* is reported from the southern Appalachian Mountains of eastern North America (Georgia, North Carolina, South Carolina) extending its range considerably. The recent report of *Lambliella fuscrosora* from North America is shown to belong to *Japewiella dollypartoniana*, which is a new record for Canada and Ontario both for the species and the genus.

KEYWORDS. – Eagle Hill, *Lecidea*, norstictic acid, *Rimularia*, sterile lichens, Trapeliaceae.

INTRODUCTION

Although originally described by Hertel (1984) to accommodate the Southern Hemisphere taxon *Lecidea psephota* Tuck., *Lambliella* Hertel was subsequently placed in synonymy with *Rimularia* Nyl. by Hertel (1987) until it was resurrected and expanded by Resl et al. (2015) based on study of morphological and molecular data. To date eight species of *Lambliella* are considered to occur in North America (Esslinger 2016), including *L. arenosa* McCune & Lumbsch that was described from the Pacific Northwest (McCune & Lumbsch 2017) and *L. fuscrosora* (Muhr & Tønsberg) M. Westb. & Resl that was recently reported from the northeastern United States and Canada (Seaward et al. 2017). The renewed focus on *Lambliella* led us to search for additional material of the species and this resulted in the notes presented here.

MATERIALS AND METHODS

This study is based on specimens deposited in the herbaria of the Canadian Museum of Nature (CANL) and New York Botanical Garden (NY). Georeferenced voucher data for all NY specimens examined can be accessed via the C.V. Virtual Herbarium at NY (<http://sweetgum.nybg.org/science/vh/>). Specimens were initially studied dry using an Olympus SZ-STB dissecting microscope. Microscopic morphology and anatomy was then studied using an Olympus BX53 compound microscope and sections prepared by hand with a razor blade, and mounted in water or iodine. Chemistry was studied using standard spot tests (K, C, KC, P, UV) following Brodo et al. (2001) and supplemented by Thin Layer Chromatography (TLC) using Solvents A and C following Culberson and Kristinsson (1970) but as modified for the peanut butter jar by Lendemer (2011).

I: RANGE EXPANSION FOR *LAMBIELLA CAECA* INTO THE SOUTHERN APPALACHIANS

Lambliella caeca (J. Lowe) Resl & T. Sprib. is an inconspicuous corticolous member of the genus that grows on the bark and branches of conifers or hardwood trees with acidic bark (Rambold & Printzen 1992). The species was treated in detail by Rambold and Printzen (1992) who reported it from scattered localities in northeastern North America and the adjacent Great Lakes Region (Fig. 1). Subsequently, populations from interior northwestern North America were also referred to *L. caeca* (Resl et al. 2015), although their exact taxonomic identity remains unsettled (McCune & Lumbsch 2017). Recently, while ex-

¹JAMES C. LENDEMER – Institute of Systematic Botany, New York Botanical Garden, Bronx, NY 10458-5126, U.S.A. – e-mail: jlendemer@nybg.org

²IRWIN M. BRODO – Canadian Museum of Nature, P.O. Box 3443, Station ‘D’, Ottawa, Ontario K1P 6P4, Canada. – e-mail: ibrodo@mus-nature.ca

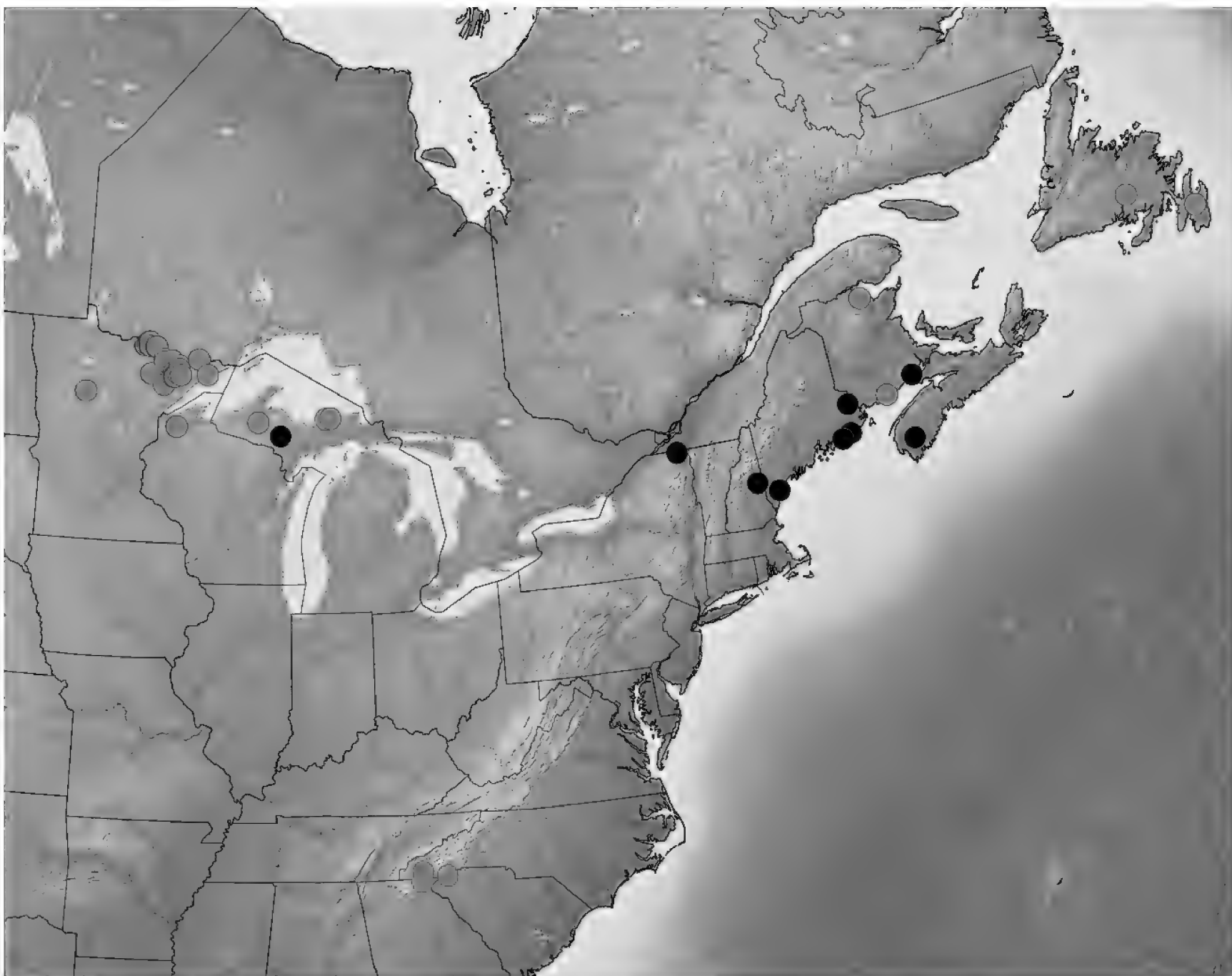


Figure 1. Geographic distribution of *Lambiella caeca* in eastern North America illustrating the previously documented distribution (yellow dots = records from CNAHL, black dots = records from CANL and NY) and the newly documented populations herein (red dots).

amining undetermined crustose lichens from the southern Appalachians at NY, the first author encountered material seemingly referable to *L. caeca* from that region (Fig. 2). This was followed by a search of undetermined material filed in various genera such as *Lecidea* s.l. and *Rimularia*, which resulted in the discovery of additional collections from several locations in the southern Appalachians (Fig. 1). Here we expand the distribution of *L. caeca* southward from its currently known extent in eastern North America such that it includes middle and high elevations of the southern Appalachian Mountains (Fig. 1). The species was found growing on the branches of conifers as well as ericaceous shrubs (e.g., *Rhododendron*). Given the frequency of such substrates in the southern Appalachians, coupled with the considerable geographic distances between the occurrences, it seems likely that the species is more widespread in the region and has simply been overlooked because of its small size and superficial resemblance to other more common crustose lichens such as *Amandinea punctata* (Hoffm.) Coppins & Scheid. or *Catillaria nigroclavata* (Nyl.) Schul., both of which can be easily distinguished by not having simple, hyaline ascospores.

Specimens examined. – **CANADA. NEW BRUNSWICK.** CHARLOTTE CO.: Saint James Parish, Grand Falls Flowage on St. Croix River (= Grand Falls Dam Recreation Area), 30 Apr. 2011, on *Betula* branch, R.C. Harris 56658 (NY). **NOVA SCOTIA.** SHELBURNE CO.: Tobeatic Wilderness Area, Indian Fields, 8 May 1999, on *Pinus* twigs, W.R. Buck 35711 (NY), W.R. Buck 35731 (NY), P.F. May 4899A (NY). **U.S.A. GEORGIA.** TOWNS/RABUN CO.: Dick's Creek Gap, ~17.1 mi W of Clayton, 11 Jun. 1981, on *Oxydendrum*, R.C. Harris 13875 (NY). **MAINE.** WASHINGTON CO.: Steele Meadow Brook Heath, E of Jonesport Elementary School parking lot, 30 Aug. 2015, on *Larix* twigs, W.R. Buck 63476 (NY); Dyer Neck, Eagle Hill, vicinity of Humboldt Field Research Institute, 28 Jul. 2006, on *Pinus*

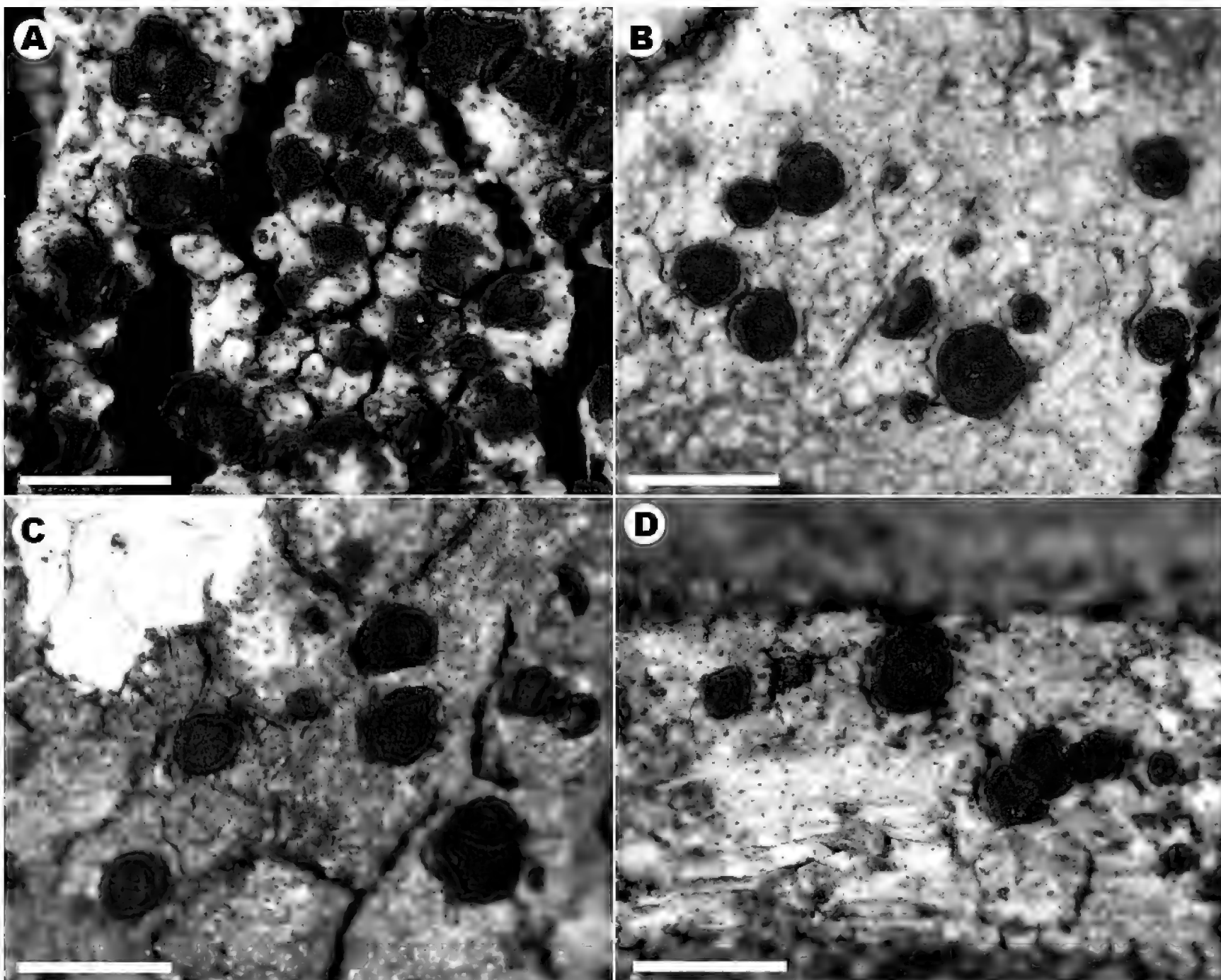


Figure 2. Gross morphology of *Lambliella caeca* from northeastern North America (A, *Buck 42521*) and southern Appalachians (B, *Harris 13875*; C, *Harris 24692*; D, *Harris 24803A*). Scales = 1.0 mm.

twig, *R.C. Harris 53094* (NY). YORK CO.: Saco Heath Preserve, NE of ME 112, 14 Sept. 2002, on bark, *W.R. Buck 42521* (NY). **MICHIGAN.** DICKINSON CO.: along road into O'Neil Lake Campground, NNW of Ralph, 10 Sept. 1971, on *Pinus*, *R.C. Harris 7379* (NY). **NEW HAMPSHIRE.** CARROLL CO.: West Branch Pine Barrens Preserve, along NH 41, 19 Sept. 1999, on *Pinus* cone, *R.C. Harris 43230* (NY). **NEW YORK.** CLINTON CO.: Gadway Sandstone Pavement Barrens, 20 Oct. 1996, on dead *Pinus* twig, *W.R. Buck 30887* (NY). **NORTH CAROLINA.** MACON CO.: Wayah Bald, ca. 8 mi W of Franklin, 26 Sept. 1989, on bark, *R.C. Harris 24692* (NY). **SOUTH CAROLINA.** PICKENS CO.: along Lookout Trail to Eastatoe Creek National Heritage Preserve, 27 Sept. 1989, on *Kalmia*, *R.C. Harris 24803A* (NY); along Eastatoe Creek ca. 2.5 mi SW of town of Rocky Bottom, 27 Sept. 1989, on *Pinus* branch, *R.C. Harris 24763A* (NY).

II: *LAMBIELLA FUSCOSORA* SHOULD BE REMOVED FROM THE NORTH AMERICAN CHECKLIST

In a recent paper documenting the lichens in and around the Eagle Hill Institute, Steuben, Maine (Seaward et al. 2017), *Lambliella fuscusora* was reported as new to North America based on sterile material from nearby Eagle Hill in the United States, and from Ontario in Canada. *Lambliella fuscusora* is a distinctive corticolous, sorediate, crustose lichen that produces norstictic acid and has a white-gray thallus with small, discrete, soralia that contain dark brownish-black soredia (Muhr & Tønsberg 1989). The species was originally described from Norway as *Rimularia fuscusora* (Muhr & Tønsberg 1989) and subsequently reported from northern Asia (Davydov & Printzen 2012) as well as Iceland (Kristinsson et al. 2014).

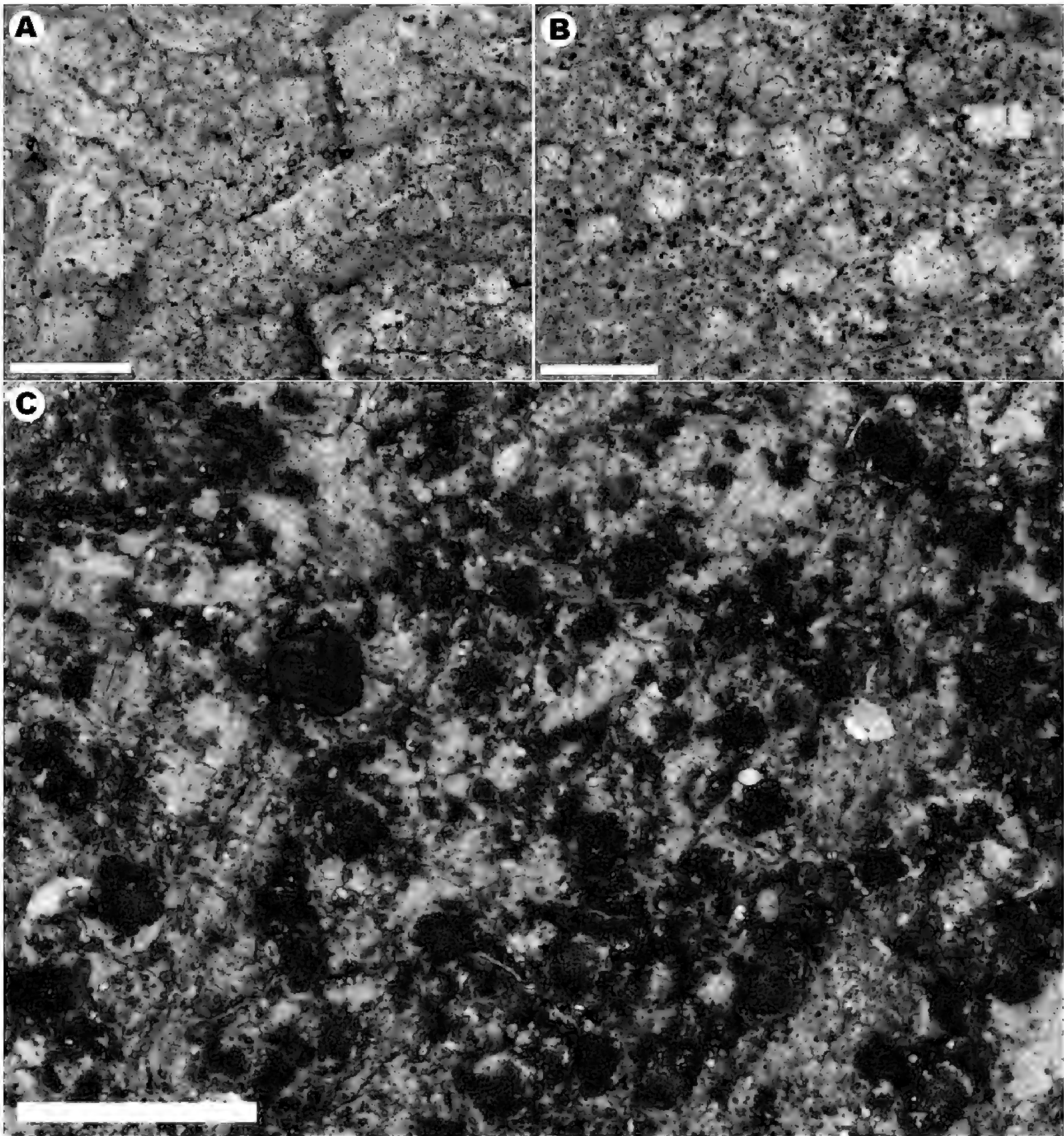


Figure 3. Comparison of specimens reported as *Lambiella fuscosora* but referable to *Japewiella dollypartoniana* (A, Brodo 31344; B, Sharnoff 1118.06) to isotype of *L. fuscosora* (Muhr 7540). Scales = 1.0 mm.

Given its broad geographic distribution in northern Europe and Asia, occurrence of the species in North America would not be unexpected. However, re-examination of the specimens that served as the basis of the report of *Lambiella fuscosora* by Seaward et al. (2017) revealed that they represented *Japewiella dollypartoniana* J.L. Allen & Lendemer, another sorediate crustose lichen that produces norstictic acid (Allen & Lendemer 2015). Although they are chemically similar, *J. dollypartoniana* can be distinguished from *L. fuscosora* by its soralia that are lighter in color (greenish-gray to reddish-brown vs. dark brownish-black in *L. fuscosora*) and the irregular presence of reddish pigments in the thallus and soralia (which are absent in *L. fuscosora*) (Fig. 3). Based on the above, *L. fuscosora* should be excluded from the North American Checklist (Esslinger 2016). On the other hand, *J. dollypartoniana* is new for Canada and Ontario.

Selected specimens of Japewiella dollypartoniana examined. – **CANADA. ONTARIO.** ALGOMA DISTRICT: Lake Superior Provincial Park, Sand River Trail, Hwy. 17 by waterfalls, 47°26'N, 84°44'W, 14 July 1993, on dead *Betula papyrifera*, S. Sharnoff & S.D. Sharnoff 1118.06 (CANL). **U.S.A. CONNECTICUT.** WINDHAM CO.: Town of Windham, Windham Bog, 20 Sept. 2009, on *Chamaecyparis* twigs, R.C. Harris 55734 (NY). **GEORGIA.** UNION CO.: Chattahoochee National Forest, along Duncan Ridge Trail from Wildcat Gap to Coosa Bald, 6 Oct. 1998, on bark, W.R. Buck 34861 (NY). **MAINE.** HANCOCK CO.: Black Mountain Trail, just S of Tunk Lake, 12 Aug 2003, on *Picea rubens*, I.M. Brodo 31344 (CANL); Donnell Pond Maine Public Reserve Lands, Black Mountain, East Black Peak, 5 Jun. 2012, on *Picea* branch, J.C. Lendemer 32331 & A. Moroz (NY). WASHINGTON CO.: Dyer Neck, Eagle Kill, 24 Jul. 2006, on *Pinus*, R.C. Harris 52843 (NY). **MICHIGAN.** CHEBOYGAN CO.: Gaylord State Forest, E of Waveland Rd., 3.4 mi N of jct w/ MI-68, 19 May 2015, on dead *Abies*, D. Waters 1362 (NY). CHIPPEWA CO.: Hiawatha National Forest, along FSR3343 1.5 mi E of jct w/ MI-123, 22 May 2015, on *Acer*, J.C. Lendemer 45239A (NY). **NEW JERSEY.** BURLINGTON CO.: Bass River State Park, along Dans Bridge Rd. E of Lake Absegami, 12 May 2007, on *Chamaecyparis*, J.C. Lendemer 8914 & A. Moroz (NY). **NEW YORK.** SUFFOLK CO.: Cranberry Bog Nature Preserve, near Cedar Pond, 20 Sept. 1986, on *Chamaecyparis*, R.C. Harris 19438 (NY). **NORTH CAROLINA.** BUNCOMBE CO.: Blue Ridge Parkway, S face of Potato Knob, 2 Oct. 2014, on *Sorbus*, J.C. Lendemer 44218 & J.L. Allen (NY). GRAHAM CO.: Nantahala National Forest, Joyce Kilmer-Slickrock Wilderness, vicinity of summit of Hangover Mountain, 30 Sept. 2014, on *Rhododendron*, J.L. Allen 4018 (NY, holotype). HAYWOOD CO.: Great Smoky Mountains National Park, summit of Purchase Knob, 30 Jun. 2011, on hardwood bark, J.C. Lendemer 29341 & N. Davoodian (NY). **OHIO.** ADAMS CO.: Edge of Appalachia Preserve, just E of Eulett Center, 25 Apr. 2015, on *Juniperus* branch, J.C. Lendemer 44509 (NY). **PENNSYLVANIA.** FAYETTE CO.: Ohiopyle State Park, along Great Allegheny Passage paralleling the Youghiogheny River, 28 Apr. 2012, on fallen branch, R.C. Harris 57410 (NY). FRANKLIN CO.: Michaux State Forest, Rocky Mountain, PA233 at bridge over Rocky Mountain Run, 1 Jun. 2009, on *Acer*, J.C. Lendemer 18152 (NY). TIOGA CO.: Tioga State Forest, W-facing slopes of S end of Callahan Hill, E shore of Slide Island Run, 14 May 2009, on *Pinus* branch, J.C. Lendemer 16891 (NY). UNION CO.: Bald Eagle State Forest, The Hook Natural Area, S of Jones Mountain Rd., 13 Sept. 2010, on *Acer*, J.C. Lendemer 25252 (NY). **TENNESSEE.** BLOUNT CO.: Great Smoky Mountains National Park, Gregory Bald Trail, Sheep Pen Gap to Gregory Bald, 12 Oct. 2010, on *Acer*, J.C. Lendemer et al. 26671 (NY). COCKE CO.: Great Smoky Mountains National Park, summit of Mt. Cammerer, 21 Oct. 2012, on *Rhododendron*, J.C. Lendemer 33400 & A. Moroz (NY). **VERMONT.** CALEDONIA CO.: Town of Wheelock, Wheelock Farm, 22 Oct. 2010, on *Alnus*, J.C. Lendemer 27579 & M. Sundue (NY). **WEST VIRGINIA.** Tucker Co., Blackwater Falls State Park, Pendleton Point Picnic Shelter, 3 Jun. 2014, on *Populus*, W.R. Buck 63171 (NY).

Specimen of Lambiella fuscusora examined [Isotype]. – **SWEDEN.** VÄSTERBOTTEN PROV.: Skellefteå par., c. 3 km NE of Mt. Stora Blåbergsliden, by the small stream Djupgrovbäcken. 65°40'N, 20°21'E. Alt. 185 m. On *Alnus incana* in a rather shaded situation. Lars-Erik Muhr 7540, 8 Aug. 1984. (CANL).

ACKNOWLEDGEMENTS

The study is a result of NSF DOB Awards 1542639 (to PI-Lendemer) and 1542629 (to PIs-Kane, McCain and Tripp). Special thanks to Troy McMullin for photographing the lichens shown in Figure 3. IMB is grateful to the Canadian Museum of Nature for its continued support of his research.

LITERATURE CITED

- Allen, J.L. and J.C. Lendemer. 2015. *Japewiella dollypartoniana*, a new widespread lichen in the Appalachian Mountains of eastern North America. *Castanea* 80: 59–65.
- Brodo, I.M., S. Duran Sharnoff and S. Sharnoff. 2001. *Lichens of North America*. Yale University Press, New Haven and London. 795 pp.
- Culberson, C.F. and H. Kristinsson. H. 1970. A standardized method for the identification of lichen products. *Journal of Chromatography* 46: 85–93.
- Davydov, E.A. and C. Printzen. 2012. Rare and noteworthy boreal lichens from the Altai Mountains (South Siberia, Russia). *The Bryologist* 115: 61–73.
- Esslinger, T.L. 2016. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada, version 21. *Opuscula Philolichenum* 15: 136–390.

- Hertel, H. 1984. Über saxicole, lecideoide Flechten der Subantarktis. Beiheft zur Nova Hedwigia 79: 399–499.
- Hertel, H. 1987. Bemerkenswerte Funde südhemisphärischer, saxicoler Arten der Sammelgattung *Lecidea*. Mitteilungen der Botanischen Staatssammlung München 23: 321–340.
- Kristinsson, H., S. Heiðmarsson and E.S. Hansen. 2014. Lichens from Iceland in the collection of Svanhildur Svane. Botanica Lithuanica 20: 14–18.
- Lendemer, J.C. 2011. A review of the morphologically similar species *Fuscidea pusilla* and *Ropalospora viridis* in eastern North America. Opuscula Philolichenum 9: 11–20.
- McCune, B. and H.T. Lumbsch. 2017. *Lambiella arenosa*, a new species from the coastal Oregon dunes. The Bryologist 120: 329–334.
- Muhr, L.E. and T. Tønsberg. 1989. *Rimularia fuscosora*, a new corticolous sorediate lichen from north western Europe. Nordic Journal of Botany 8: 649–652.
- Rambold, G. and C. Printzen. 1992. *Rimularia caeca*, a corticolous lichen species from North America. Mycotaxon 44: 453–460.
- Resl, P., K. Schneider, M. Westberg, C. Printzen, Z. Palice, G. Thor, A. Fryday, H. Mayrhofer, T. Spribille. 2015. Diagnostics for a troubled backbone: testing topological hypotheses of trapelioid lichenized fungi in a large-scale phylogeny of Ostropomycetidae (Lecanoromycetes). Fungal Diversity 73: 239–258.
- Seaward, M.R.D., D.H.S. Richardson, I.M. Brodo, R.C. Harris and D.L. Hawksworth. 2017. Checklist of lichen-forming, lichenicolous and allied fungi of Eagle Hill and its vicinity, Maine. Northeastern Naturalist 24: 349–379.

New and interesting lichens and allied fungi from British Columbia, Nova Scotia, Nunavut, Ontario, Prince Edward Island, and Quebec, Canada

RICHARD TROY McMULLIN¹

ABSTRACT. – Ongoing biogeographical and ecological studies of lichens and allied fungi in Canada have resulted in range extensions throughout the country that are documented here. Four species are reported new to the Territory of Nunavut: *Acarospora schleicheri*, *Buellia ocellata*, *Melanelixia subaurifera*, and *Rhizocarpon lecanorinum*. New records are reported for five provinces: British Columbia (*Microcalicium conversum*, *Umbilicaria arctica*), Nova Scotia (*Arthonia hypobela*, *A. vinosa*, *Micarea misella*, and *Sarea difformis*), Ontario (*Lecanora carpinea*, *Microcalicium conversum*, *Sphaerophorous fragilis*, and *Umbilicaria phaea* var. *phaea*), Prince Edward Island (*Ropalospora viridis*), and Quebec (*Candelariella lutella*, *Microcalicium arenarium*, and *Sclerophora peronella*). New records representing major range extensions are reported for: *Psora globifera*, *S. peronella*, and *Xanthomendoza weberi*. *Pilophorus fibula* is also reinstated to the Ontario lichen list.

KEYWORDS. – Biogeography, Canadian biodiversity, species at risk, calicioids.

INTRODUCTION

The rich history of lichen collecting in Canada dates back to the 1700's and has been summarized by Goward et al. (1998). Since 1998, however, the results of many lichen collection efforts have been published which include numerous new provincial and national records. These include studies in British Columbia (Björk et al. 2009; Spribille et al. 2009), Manitoba (Piercey-Normore et al. 2016), Newfoundland and Labrador (McCarthy et al. 2015; McMullin & Aresenault 2016; McMullin & Wiersma 2017), Nova Scotia (Anderson 2014; McMullin et al. 2008; McMullin 2009), Ontario (Brodo et al. 2013; McMullin & Lendemer 2013, 2016; McMullin et al. 2015), Prince Edward Island (McMullin et al. 2012; McMullin 2015), Quebec (Freebury 2011, McMullin et al. 2017), Saskatchewan (Freebury 2014), and monographs that contributed new records to several provinces (e.g., Lendemer 2013, Sheard 2010).

During ongoing biogeographical and ecological studies of the lichen biota in Canada, I have compiled new provincial records and records of uncommon species that represent major range extensions. These records are presented here along with identification characters, images, and distribution maps.

MATERIALS AND METHODS

Study Area. – Canada is the second largest country in area in the world (9,984,670 km²), but has a relatively small population (36,708,083 people) (Statistics Canada 2016, World Atlas 2017). It is divided into three territories (Northwest Territory, Nunavut, and the Yukon; Fig. 1), ten provinces (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Prince Edward Island, Quebec and Saskatchewan; Fig. 1), 15 terrestrial ecosystems (Fig. 1), and 12 forest regions (Fig. 2). This diverse landscape is inhabited by approximately 2,550 lichens and allied fungi (based on unpublished national lists compiled by I.M. Brodo, C. Deduke, C.E. Freebury, and J. Marsh).

¹RICHARD TROY McMULLIN – Canadian Museum of Nature, Research and Collections, Ottawa, ON, K1P 6P4, Canada. – e-mail: tmcmullin@mus-nature.ca

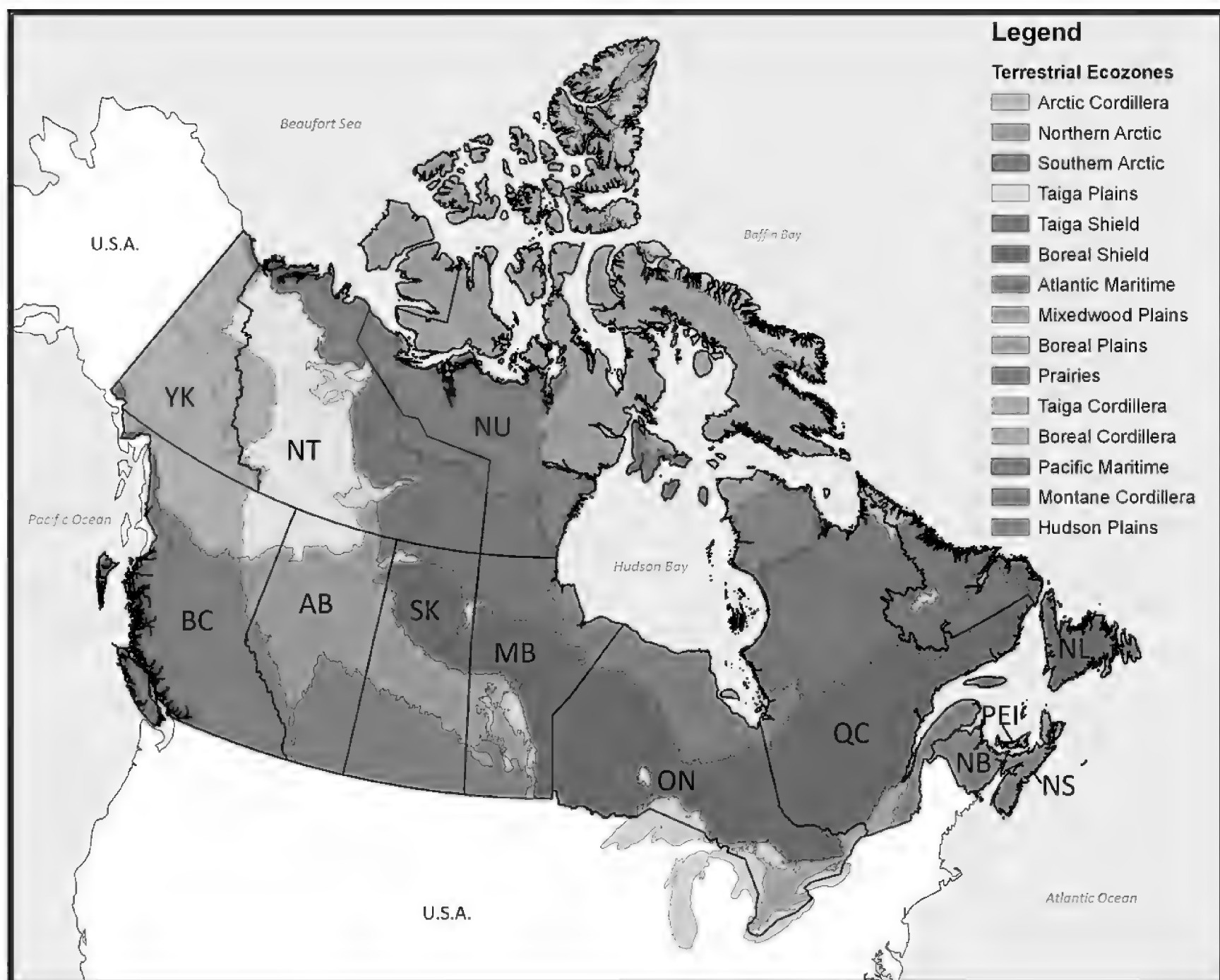


Figure 1. The 15 terrestrial ecozones in Canada (Ecological Stratification Working Group 1995). Provincial acronyms: **AB** = Alberta, **BC** = British Columbia, **MB** = Manitoba, **NB** = New Brunswick, **NL** = Newfoundland and Labrador, **NS** = Nova Scotia, **ON** = Ontario, **PEI** = Prince Edward Island, **QC** = Quebec, and **SK** = Saskatchewan. Territorial acronyms: **NT** = Northwest Territory, **NU** = Nunavut, and **YK** = Yukon.

Voucher identification and deposition. – Specimens were identified using chemical spot tests, microscopy, and an ultraviolet light chamber, following Brodo et al. (2001). Thin-layer chromatography was used to assess secondary metabolites following Culberson and Kristinsson (1970) and Orange et al. (2001) in solvents A, B', and C. Specimens from the following herbaria were studied: Biodiversity Institute of Ontario Herbarium (OAC) at the University of Guelph, Canadian Museum of Nature (CANL), New Brunswick Museum (NBM), and the New York Botanical Garden (NY).

Distribution data. – Summary distribution maps are provided for species discussed herein and data used to generate these maps were obtained from six databases: 1) Canadensys, 2) Canadian Museum of Nature, 3) Consortium of North American Lichen Herbaria (contains digitized records from 90 herbaria), 4) Biodiversity Institute of Ontario, 5) Global Biodiversity Information Facility, and 6) the New York Botanical Garden; and a review of relevant literature for each species (e.g., monographs of the genera). Maps were produced with SimpleMappr (Shorthouse 2010).

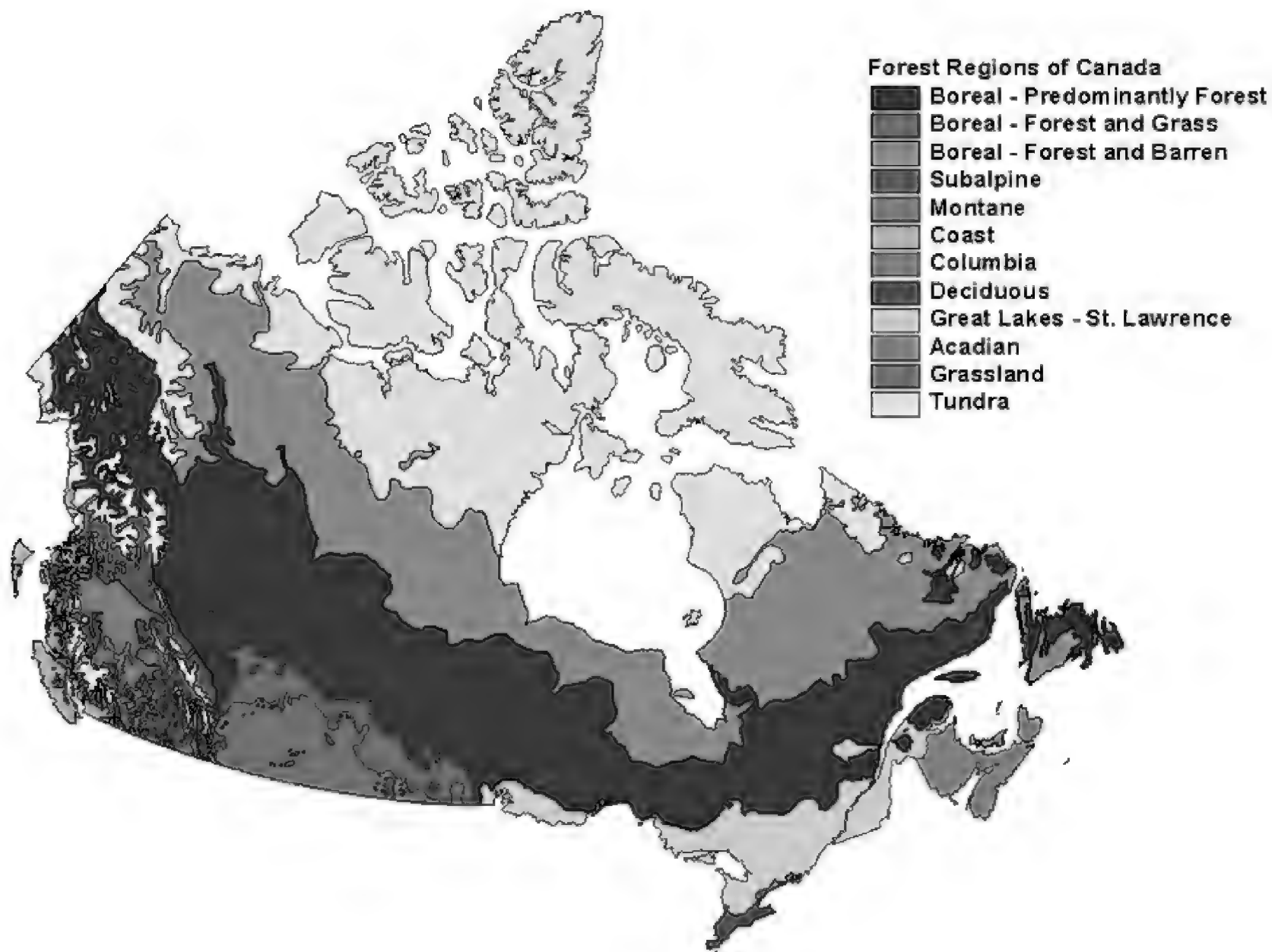


Figure 2. The 12 forest regions of Canada (Rowe 1972).

RESULTS AND DISCUSSION

Range extensions within Canada are reported for 20 species. Four species are newly reported to the Territory of Nunavut: *Acarospora schleicheri*, *Buellia ocellata*, *Melanelixia subaurifera*, and *Rhizocarpon lecanorinum*. New records are reported for five provinces: British Columbia (*Microcalicium conversum*, *Umbilicaria arctica*), Nova Scotia (*Arthonia hypobela*, *A. vinosa*, *Micarea misella*, and *Sarea difformis*), Ontario (*Lecanora carpinea*, *M. conversum*, *Sphaerophorous fragilis*, and *Umbilicaria phaea* var. *phaea*), Prince Edward Island (*Ropalospora viridis*), and Quebec (*Candelariella lutella*, *Microcalicium arenarium*, and *Sclerophora peronella*). New range extensions are reported for: *Psora globifera*, *S. peronella*, and *Xanthomendoza weberi*. *Pilophorus fibula* is reinstated to the Ontario lichen list. An account of each species is provided below together with citations of relevant vouchers that were studied.

Acarospora schleicheri (Ach.) A.Massal.

FIGURES 3A & B.

Acarospora schleicheri is reported here for the first time from Nunavut from the High Arctic. This is the northernmost known record, but it is not surprising to find the species in the region because it has been collected in western Greenland (Hansen & Andersen 1995). It is characterised by an areolate to squamulose thallus with a yellow, UV+ orange (rhizocarpic acid) upper surface and a lower surface with rhizohyphae, apothecia with dark brown disks and polysporous asci, and a terricolous habit (Hansen & Andersen 1995, Knudsen 2007).

Specimen examined. – **CANADA. NUNAVUT.** QIKIQTAAALUK REGION: Quttinirpaaq National Park, ~500 m N of Lake Hazen, N of the national park camp, 16.vii.2017, *R.T. McMullin 18850* & *P. Sokoloff* (CANL).

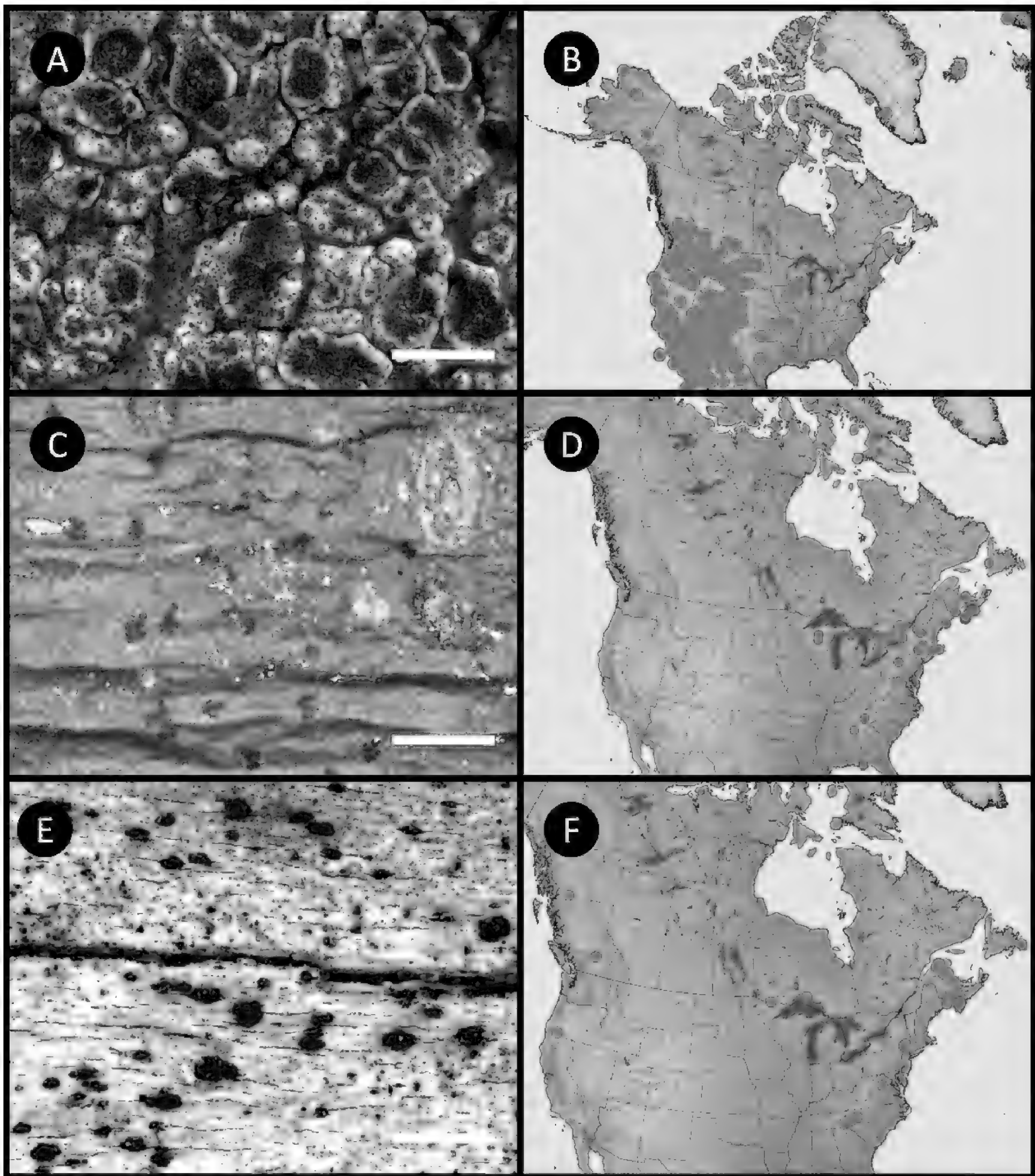


Figure 3. Morphologies and distributions of species discussed here. **A**, *Acarospora schleicheri* thallus and apothecia, (McMullin 18850, CANL). **B**, North American distribution of *A. schleicheri*. **C**, *Arthonia hypobela* apothecia (McMullin 17286, CANL). **D**, North American distribution of *A. hypobela*. **E**, *Arthonia vinosa* apothecia and pycnidia (McMullin 18720 CANL). **F**, North American distribution of *A. vinosa*. Scales = 1.0 mm in A, 1.5 mm in E, 1.6 mm in C. In maps, blue dots = new records, red dots = previous collections.

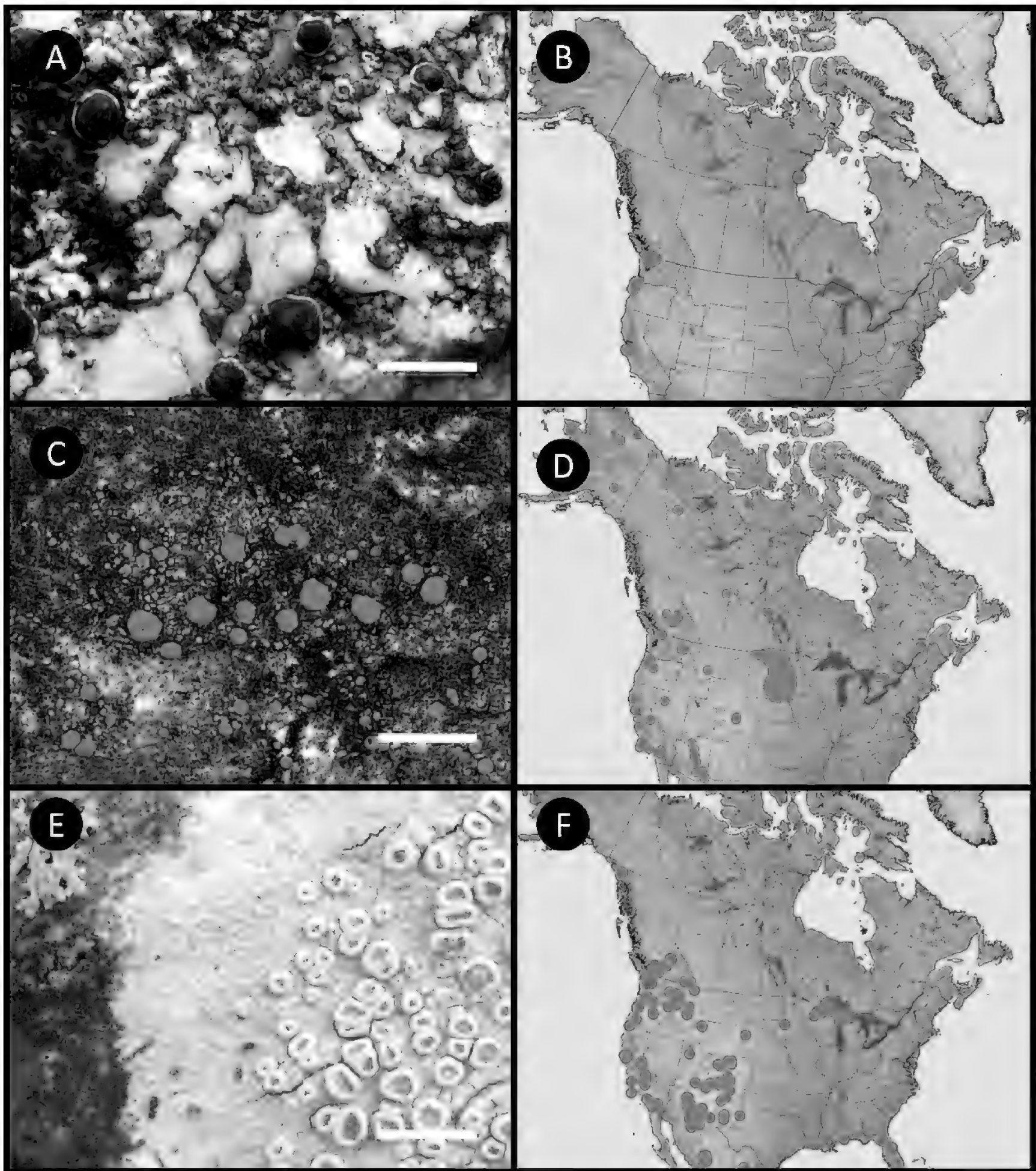


Figure 4. Morphologies and distributions of species discussed here. **A**, *Buellia ocellata* thallus and apothecia, (McMullin 18027, CANL). **B**, North American distribution of *B. ocellata*. **C**, *Candelariella lutella* thallus and apothecia (McMullin 18462, CANL). **D**, North American distribution of *C. lutella*. **E**, *Lecanora carpinea* thallus and apothecia (McMullin 15729 CANL). **F**, North American distribution of *L. carpinea*. Scales = 0.7 mm in A, 1.5 mm in C, 2.0 mm in E. In maps, blue dots = new records, red dots = previous collections.

Arthonia hypobela Nyl. (syn. *Arthonia caudata* Willey; Sundin 1999)

FIGURES 3C & D.

These are the first reports of *Arthonia hypobela* from Nova Scotia. Two previous unpublished collections were made in southwestern Nova Scotia in 1999 (*W. Buck 35677, 35714* [NY, n.v.]). It is characterised by its non-lichenized thallus, irregularly shaped apothecia that are usually unbranched, substrate (*Pinus strobus*), and hyaline ascospores that are 6 to 8-celled, wider at one end, and often have a tail (elongated at one end) (Sundin 1999, Willey 1887).

Specimens examined. – **CANADA. NOVA SCOTIA.** ANNAPOLIS CO.: Halifax, Kejimikujik National Park and National Historic Site, trees along the parking lot for Roger's Brook, along the Kejimikujik Main Parkway, 11.xi.2016, corticolous on *Pinus strobus*, *R.T. McMullin et al. 18805* (CANL). HALIFAX CO.: Old Annapolis Road Nature Reserve, at the trailhead parking lot for the Old Annapolis Road hiking trail along Hiking Trail Road, young forest, edge trees, 25.vi.2017, corticolous on *P. strobus*, *R.T. McMullin et al. 17336* (CANL); Halifax, Point Pleasant Park, along Cable Road, ~50 m S of Cambridge Drive, mixed-wood coastal forest, 22.vi.2017, corticolous on *P. strobus*, *R.T. McMullin 17286* (CANL). QUEENS CO.: Halifax, Kejimikujik National Park and National Historic Site, at the end of Fire Tower Road, at the Fire Tower, mature mixed-wood forest, 11.xi.2016, corticolous on *P. strobus*, *R.T. McMullin et al. 18806* (CANL).

Arthonia vinosa Leight.

FIGURES 3E & F.

Arthonia vinosa is widespread in North America, but it is known from relatively few collections (Lendemer et al. 2013). Though this is the first published record for Nova Scotia, *A. vinosa* was included in an unpublished list for the province compiled by Rick Fournier, which, nevertheless, did not provide voucher information. This species is characterised by convex apothecia that are KOH+ purple (anthraquinones), a reaction best observed on sections under a compound microscope, and 2-celled ascospores that are $11\text{--}15 \times 4\text{--}5 \mu\text{m}$ (Coppins & Aptroot 2009, Lendemer et al. 2013).

Specimen examined. – **CANADA. NOVA SCOTIA.** ANNAPOLIS CO.: Halifax, Kejimikujik National Park and National Historic Site, along Roger's Brook, ~100 m S of the Kejimikujik Main Parkway, 11.xi.2016, lignicolous, *R.T. McMullin et al. 18720* (CANL).

Buellia ocellata (Flörke ex Flot.) Körb.

FIGURES 4A & B.

Buellia ocellata is rarely collected in North America (Lendemer & Harris 2013). It was previously only known from coastal provinces and states on both sides of the continent (Clayden 1998; Harris et al. 2007; Rajakaruna et al. 2011; Sheard 1969). The species is reported here for the first time from Nunavut. It is characterised by a pale yellow areolate thallus that is C+ orange (xanthones), dark apothecia with thalline collars, a HNO₃+ red epithecium, and brown 2-celled ascospores that are $(11\text{--})13\text{--}17(\text{--}21.5) \times 6.5\text{--}9(\text{--}11.5)$ (Coppins et al. 2009, Lendemer & Harris 2013, Sheard 1969).

Specimens examined. – **CANADA. NUNAVUT.** KIVALLIQ REGION: Arviat, 4.7 km W of airport terminal along road past airport, 11.vii.2016, saxicolous, *R.T. McMullin et al. 18027* (CANL). Nuvuk proposed Territorial Park, esker along N coast, 170 m WNW of cabin, 1.3 km WNW of North Point, tundra, 6.vii.2016, saxicolous, *R.T. McMullin et al. 18039* (CANL).

Candelariella lutella (Vain.) Räsänen

FIGURES 4C & D.

Candelariella lutella is reported here for the first time from Quebec. The species is characterized by a small thallus composed of scattered yellow areoles, polysporous asci, and corticolous substrate (Thomson 1997, Westberg 2004, Westberg et al. 2011). *Candelariella vitellina* (Hoffm.) Müll. Arg. can be similar in appearance and also has polysporous asci, but it has larger thalli (up to several cm wide vs. <0.5

mm in *C. lutella*), larger apothecia (<0.8 mm in diam. vs. <0.4 mm), and it usually grows on non-calcareous rock instead of deciduous trees (Thomson 1997, Westberg 2004, Westberg et al. 2011).

Specimens examined. – **CANADA. QUEBEC.** GATINEAU MÉTROPOLITAIN: Alymer, N of Pink Rd., E of Vanier Rd., behind Natural Heritage Campus building, Canadian Museum of Nature, 26.vi.2001, corticolous on fallen *Populus balsamifera*, *I.M. Brodo 33111* (CANL); Chelsea, woodlot at corner of Ch. De la Rivière and Ch. St. Clément, among granitic outcrops and wetlands, within mixed forest, 25.iv.2014, corticolous on dead branch, *C.E. Freebury 2242* (CANL). LES COLLINES-DE-L'OUTAOUAIS REGIONAL CO.: Gatineau Park, Ramsey Lake Area, just off Eardley-Marsham Road towards Blind Lake, 10.v.1998, corticolous on fallen *Populus* branch, *I.M. Brodo 29507* (CANL; conf. R.T. McMullin); Gatineau Park, Luskville Falls Trail, ~30 m SW of the Luskville Fire Tower, 9.iv.2016, corticolous on *Populus*, *R.T. McMullin 18809 & A. Belliveau* (CANL). MUNICIPALITY OF LAC-JACQUES-CARTIER: Forêt Montmorency, along road to Chute de la rivière Noire, ~11.5 km W of Highway 175, 26.v.2017, corticolous on *Populus*, *R.T. McMullin 18462* (CANL).

***Lecanora carpinea* (L.) Vain.**

FIGURES 4E & F.

This record was collected during the 2015 Ontario BioBlitz in the Don River Watershed. It is the first report of the species from Ontario. *Lecanora carpinea* is mainly a western species in North America, but it is also known from northern Michigan (CNALH 2017; Harris 2015; Imshaug & Brodo 1966; Ryan et al. 2004). The species is characterised by a KOH+ yellow (atranorin) esorediate thallus, lecanorine apothecia with heavily pruinose disks that are C+ yellow (sordidone), well developed amphithecial cortex, simple hyaline ascospores, and corticolous habit (Imshaug & Brodo 1966, Ryan et al. 2004). *Lecanora subpallens* Zahlbr. is similar and also has C+ yellow pruinose disks, but it differs by lacking an amphithecial cortex and by having protocetraric acid (PD+ red) in the thallus (best seen with a PD test in the amphithecium of apothecial sections under a compound microscope) (Imshaug & Brodo 1966).

Specimen examined. – **CANADA. ONTARIO.** YORK REGION: Don River Watershed, Nevada Park, trail off Hunterwood Chase, 14.vi.2015, corticolous, *R.T. McMullin 15729 & M. King* (CANL; conf. I.M. Brodo).

***Melanelixia subaurifera* O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch**

FIGURE 5A.

Melanelixia subaurifera is a common species in the boreal and temperate regions of North America (Brodo et al. 2001; Hinds and Hinds 2007; Thomson 1984). It is reported here for the first time from Nunavut. The species is distinguished from other brown parmelioid species by the presence of laminal soredia and isidia that often leave white or yellowish patches where they have been rubbed off, by the absence of pseudocyphellae (or by inconspicuous pseudocyphellae), and its C+ red medulla (lecanoric acid) (Brodo et al. 2001; Esslinger 1977, 1978).

Specimen examined. – **CANADA. NUNAVUT.** KIVALLIQ REGION: Arviat, Nuvuk proposed Territorial Park, ca. 300 m ESE of Hudson Bay Post cairn on N coast, 8.vii.2016, lignicolous on an old sled, *R.T. McMullin et al. 17687* (CANL).

***Micarea misella* (Nyl.) Hedl.**

FIGURES 5C & D.

Micarea misella is reported here for the first time in Nova Scotia. It is characterised by having an inconspicuous thallus, black convex to globose apothecia with a colourless hypothecium and a hymenium that is 25–36 µm tall with a greenish upper portion that is KOH+ violet, 1(–2)-celled hyaline ascospores that are (6.5–)7–9.5 × 2–3(–3.5) µm, and abundant stalked pycnidia (Coppins 2009, Czarnota 2007).

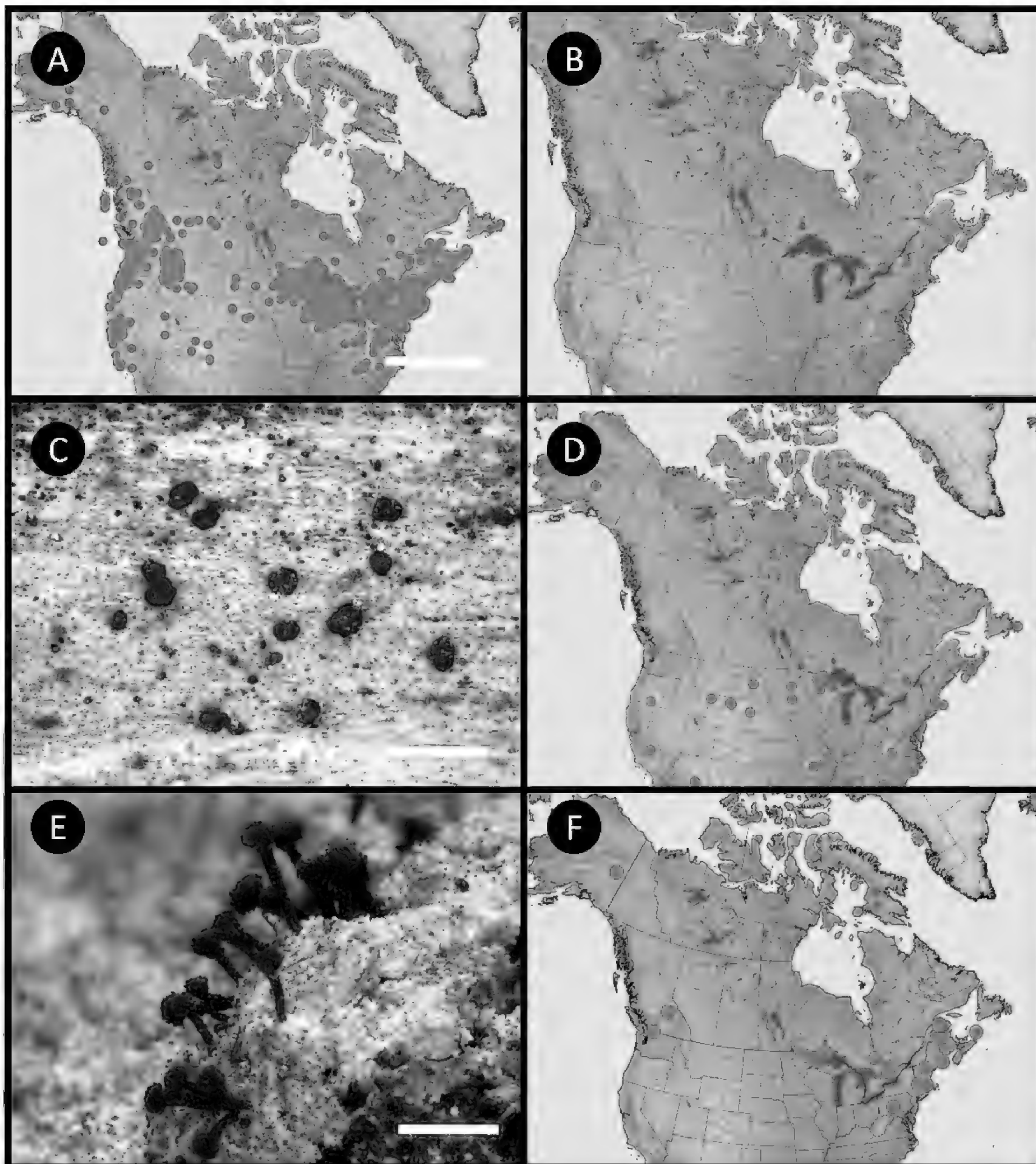


Figure 5. Morphologies and distributions of species discussed here. **A**, North American distribution *Melanelixia subaurifera*. **B**, North American distribution of *Pilophorus fibula*. **C**, *Micarea misella* thallus with apothecia and pycnidia (McMullin 17330, CANL). **D**, North American distribution of *M. misella*. **E**, *Microcalicium arenarium* apothecia on *Psilolechia lucida* (McMullin 18810 CANL). **F**, North American distribution of *M. arenarium*. Scales = 1.1 mm in E, 1.0 mm in C. In maps, blue dots = new records, red dots = previous collections.

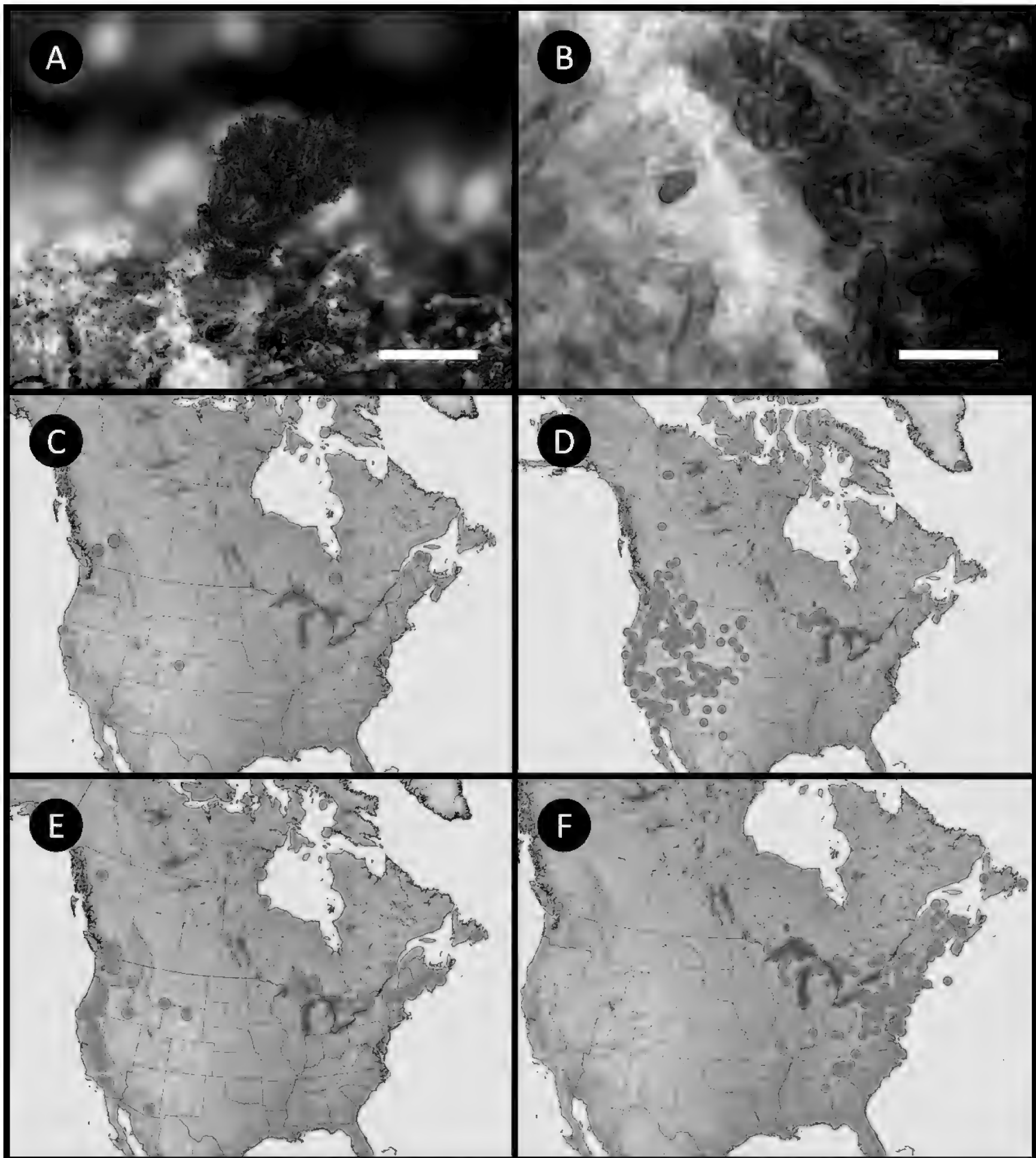


Figure 6. Morphologies and distributions of species discussed here. **A**, *Microcalicium conversum* apothecium with large, aeruginose mazaedium (Wetmore 28801B, CANL). **B**, *M. conversum* apothecium in water mount illustrating brown excipulum (left) and aeruginose mazaedium (right) (Wetmore 28801B, CANL). **C**, North American distribution of *M. conversum*. **D**, North American distribution of *Psora globifera*. **E**, North American distribution of *Rhizocarpon lecanorinum*. **F**, North American distribution of *Ropalospora viridis*. Scales = 0.3 mm in A, 15 μ m in B. In maps, blue dots = new records, red dots = previous collections.

Specimen examined. – **CANADA. NOVA SCOTIA.** HALIFAX CO.: Old Annapolis Road Nature Reserve, along Old Annapolis Road hiking trail, ~220 m W of the trailhead parking lot along Hiking Trail Road, at a stream at the N end of Rees Lake, 25.vi.2017, lignicolous, *R.T. McMullin et al. 17330* (CANL).

***Microcalicium arenarium* (Hampe ex A.Massal.) Tibell**

FIGURE 5E & F.

Microcalicium arenarium is an inconspicuous species that occurs on thalli of *Psilolechia lucida* (Ach.) M. Choisy, colonies of non-lichenized *Stichococcus*, or mixed colonies of *Stichococcus* and trebouxoid algae on rock (Selva 2014, Tibell 1999). It is reported here for the first time from Quebec. The species is characterised by its distinctly stalked apothecia, aeruginose (olive to blue-green) mazaedia that do not extend far above the excipulum, and ascospores that are <10 µm long and ellipsoidal in shape (Selva 2014, Tibell 1999).

Specimen examined. – **CANADA. QUEBEC.** M.R.C. DE LA HAUTE-GASPÉSIE: Parc national de la Gaspésie, along Rivière Sainte-Anne at the western base of Mt. Albert, in a small rock crevasse in the river canyon below Chute St. Ann, 26.ix.2017, lichenicolous on *Psilolechia lucida*, *R.T. McMullin 18810 & H. Dorval* (CANL).

***Microcalicium conversum* Tibell**

FIGURES 6A & B.

Microcalicium conversum is reported here for the first time from British Columbia and Ontario. It is characterised by sessile or subsessile apothecia, aeruginose (olive to blue-green) mazaedia, and ascospores that are >10 µm long and cylindrical (Selva 2014). *Microcalicium disseminatum* (Ach.) Vain. is similar but differs by having an aeruginose excipulum instead of one that is brown or red-brown in colour and it commonly produces multiseptate rather than 1-septate ascospores (Selva 2014, Tibell 1978).

Specimens examined or reported. – **CANADA. BRITISH COLUMBIA.** PEMBERTON VALLEY: ~20 mi N of Pemberton, in a mixed-wood conifer forest, 17.ix.1972, corticolous on *Thuja plicata*, *L. Tibell 7172* (CANL; rev. S.B. Selva). THOMPSON-NICOLA DISTRICT: Wells Gray Provincial Park, S end of Clearwater Lake, 1 km N of the road end, 31.viii.1996, lignicolous, *T. Goward & Arsenault 96-1011* (CANL; rev. S.B. Selva); Wells Gray Provincial Park, Murtle Plateau, S of Majerus farm, Blackwater Bluff, old-growth conifer forest, 24.viii.1996, *T. Goward & A. Arsenault 96-775* (CANL; rev. S.B. Selva); Wells Gray Provincial Park, along road to Clearwater Lake, at Deep Creek, 20.ix.1972, lignicolous on *T. plicata*, *L. Tibell 5205* (CANL; rev. S.B. Selva); **ONTARIO.** COCHRANE DISTRICT: Stimson Township, Iroquois Falls Forest North, *Pinus mariana* and *Pinus banksiana* dominated forest between 101-140 years old, 11.vii.2008, corticolous on *Picea mariana*, *R.T. McMullin 9929 & L. Elias* (CANL). THUNDER BAY DISTRICT: Slates Islands, Patterson Island, on hill E of McGeevy Harbour, in *Picea* and *Thuja* bog, 16.vii.1977, corticolous on *Picea* snag, *C.M. Wetmore 28801B* (CANL; rev. S.B. Selva). **QUEBEC.** M.R.C. DE LA HAUTE-GASPÉSIE: Parc national de la Gaspésie, *T. occidentalis* forest on the N side of road 16 and N of ruisseau du Portage, ~500 m E of the turn off to lac aux Américains, 25.ix.2017, corticolous on *T. occidentalis*, *R.T. McMullin et al. 18811* (CANL).

***Pilophorus fibula* (Tuck.) Tuck.**

FIGURE 5B.

The specimen cited below was collected by John Macoun in 1882 and published as *Pilophorus cereolus* var. *fibula* Tuck. (Macoun 1902). The identification was then erroneously revised to the western North American species *P. acicularis* (Ach.) Th. Fr. on an annotation slip in 1975. Subsequent examination in 1986 agreed with the revision and suggested that locality information on the packet was inaccurate since *P. acicularis* is not known to occur east of Alberta in Canada. As a result, neither name was included on the last published list of Ontario lichens (Newmaster et al. 1998). Upon reviewing the specimen again, I found that the original identification was correct and reinstate it here, using its current name, as the only known collection of *P. fibula* from Ontario. The species is characterized by having cephalodia between the

squamules and short (<1 mm tall), esorediate pseudopodetia with black globose apothecia at the tips (Jahns 1970, 1981).

Specimen examined. – **CANADA. ONTARIO.** BAY OF QUINTE REGION: Belleville, 1882, on rocks, *J. Macoun 2063* (CANL; conf. R.T. McMullin).

***Psora globifera* (Ach.) A. Massal.**

FIGURE 6D.

Psora globifera is reported here for the first time from southern Ontario. It is common in western North America with scattered disjunct populations in northeastern parts of the continent, mostly from the Lake Superior region (see Fig. 6D; Thomson 1997, Timdal 1986). This species is characterised by brown squamules that are <5 mm in diameter and have margins that are concolorous with the upper surface, dark apothecia that are laminal on the squamules, absence of secondary metabolites, and its occurrence on calcareous substrates (usually soil) (Timdal 1986).

Specimen examined. – **CANADA. ONTARIO.** KAWARTHA LAKES DIVISION: Carden Alvar Natural Area, road side along Alvar Rd., ~1 km W of Sugar Bush Road, 3.x.2015, terricolous on thin soil over calcareous rock, *R.T. McMullin 18343 & E. Larsen* (CANL).

***Rhizocarpon lecanorinum* Anders**

FIGURE 6E.

This is apparently the northernmost occurrence of *Rhizocarpon lecanorinum* in North America. It is also the first record of the species from Nunavut. This species is characterized by yellow areoles that are crescent-shaped around black apothecia, a KOH- epihymenium, the presence of stictic acid and sometimes gyrophoric acid, and a black prothallus (Fletcher et al. 2009, Poelt 1988)

Specimen examined. – **CANADA. NUNAVUT.** KIVALLIQ REGION. Arviat, W edge of hamlet, ca. 50 m W of creek and first bridge on road to Maguse Lake, 3.vii.2016, *R.T. McMullin et al. 18019* (CANL).

***Ropalospora viridis* (Tønsberg) Tønsberg**

FIGURE 6F.

Ropalospora viridis is new to Prince Edward Island (McMullin 2015). It is a soorediate crustose lichen with small green areoles, often forms a brown prothallus, and typically occurs on bark (Lendemer 2011). It is morphologically similar to *Fuscidea pusilla* Tønsberg, but that species contains divaricatic acid instead of perlatolic acid (Lendemer 2011).

Specimens reported. – **CANADA. PRINCE EDWARD ISLAND.** PRINCE CO.: Pleasant View Cedar Swamp, 1 to 1.3 km SW of junction of Route 155/Thompson Road with Route 15, 15.v.2009, *S.R. Clayden 19822B* (NBM, n.v.). QUEENS CO.: West Covehead, between Brackley and Covehead Bays, 0.5 mi S of Prince Edward National Park, 1977, *J. Fabiszewski s.n.* (NY[n.v.], rev. Lendemer).

***Sarea difformis* (Fr.) Fr.**

FIGURES 7A & B.

Sarea difformis is a resinicolous species that occurs on conifers (Hawksworth & Sherwood 1981), usually on old darkened resin (Fig. 7A). It is characterised by dark apothecia, polysporous asci, and its substrate (Hawksworth & Sherwood 1981). This species is new to Nova Scotia. It is inconspicuous and has likely been overlooked in the province and in many areas of North America.

Specimen examined. – **CANADA. NOVA SCOTIA.** HALIFAX CO.: Halifax, Point Pleasant Park, between the southern ends of Cable Road and Tower Hill Road, 22.vi.2017, resinicolous on *Picea*, *R.T. McMullin 17280* (CANL).

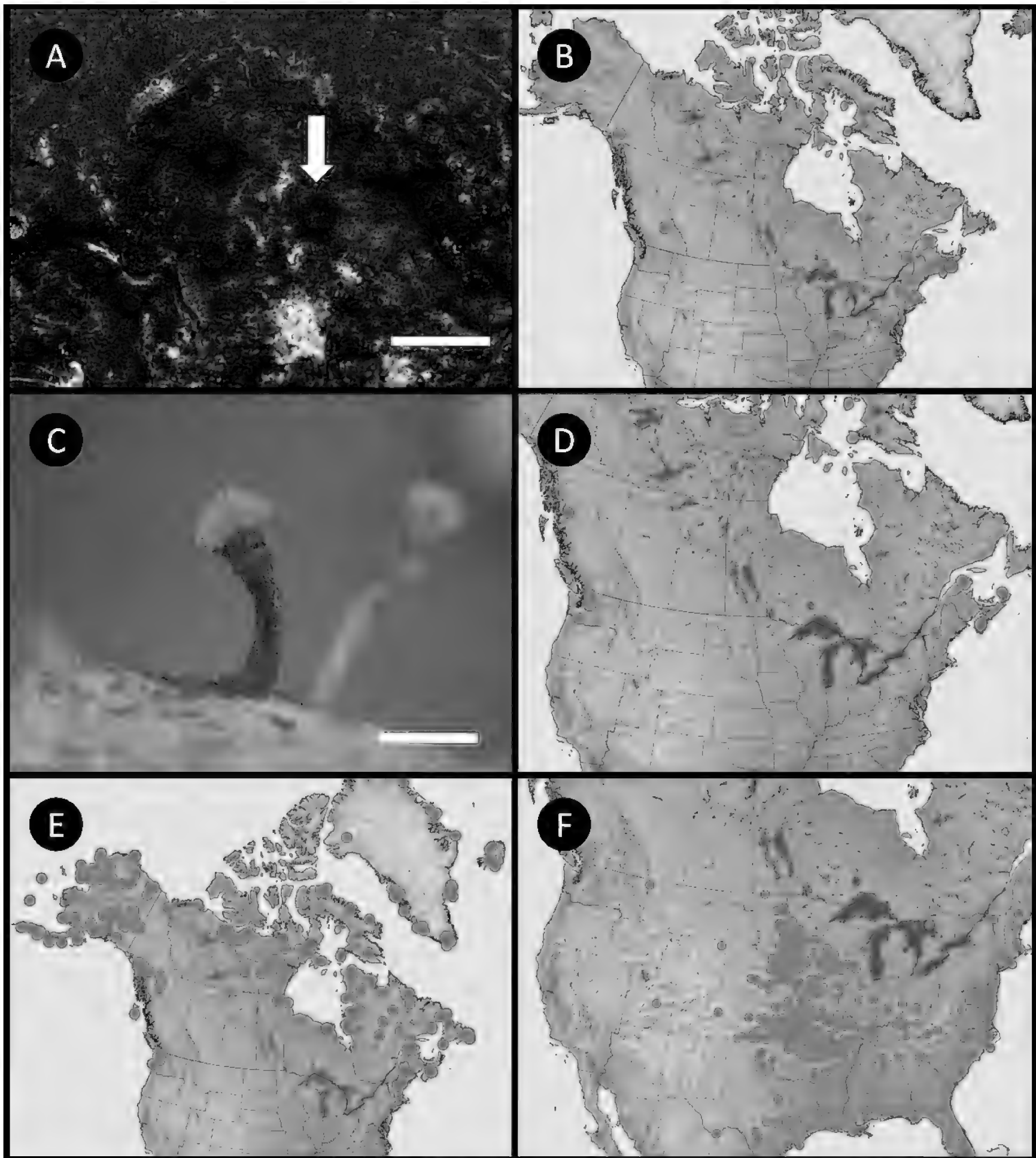


Figure 7. Morphologies and distributions of species discussed here. **A**, *Sarea difformis* apothecia on *Picea* resin (McMullin 17280, CANL). **B**, North American distribution of *S. difformis*. **C**, *Sclerophora peronella* apothecium (McMullin 18803, CANL). **D**, North American distribution of *S. peronella*. **E**, North American distribution of *Sphaerophorus fragilis*. **F**, North American distribution of *Xanthomendoza weberi*. Scales = 1.0 mm in A, 0.2 mm in C. In maps, blue dots = new records, red dots = previous collections.

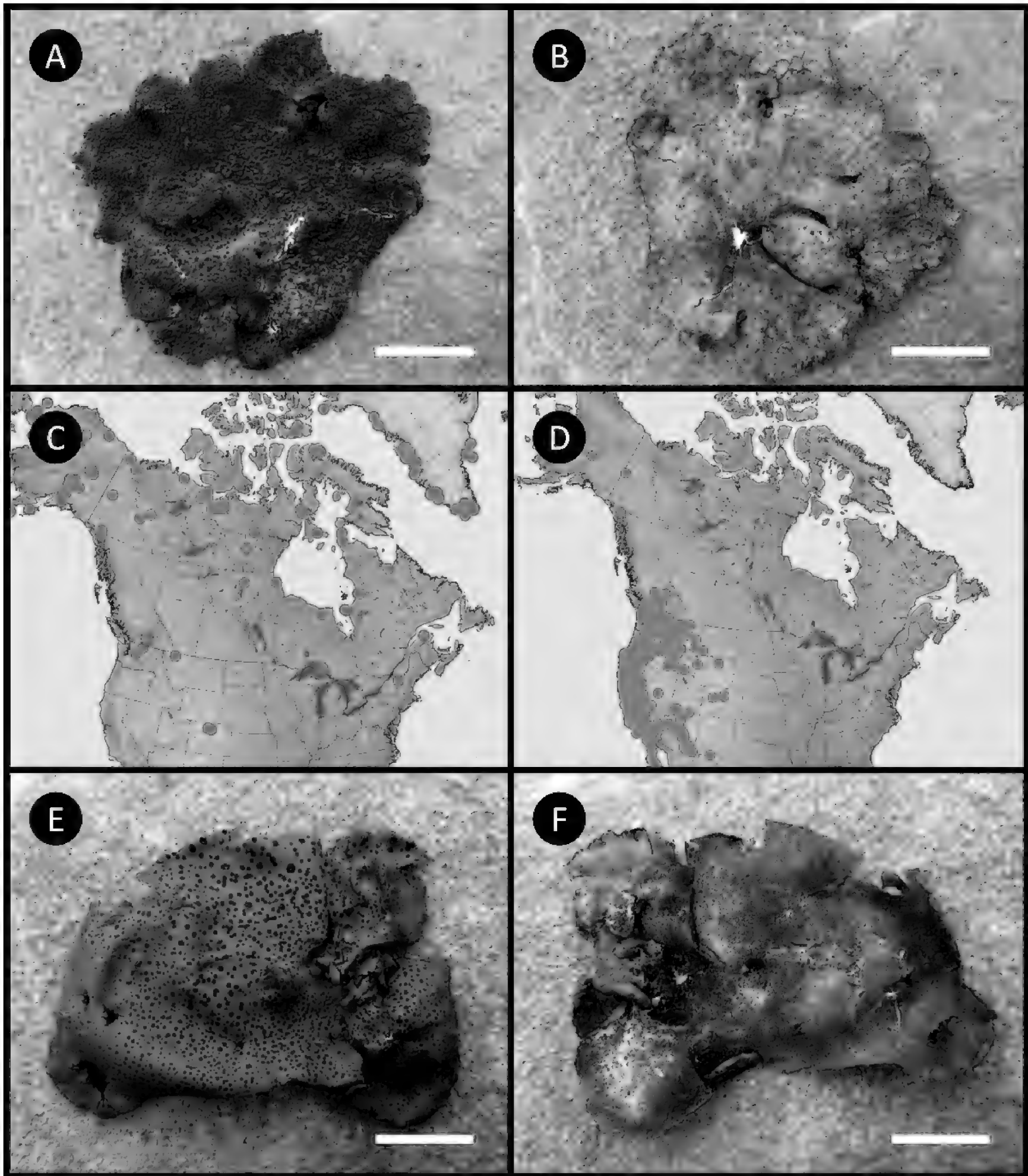


Figure 8. Morphologies and distributions of species discussed here. **A & B**, *Umbilicaria arctica* thallus upper surface (A) and lower surface (B) (Scotter JPL0013, CANL). **C**, North American distribution of *U. arctica*. **D**, North American distribution of *U. phaea* var. *phaea*. **E & F**, *Umbilicaria phaea* var. *phaea* thallus upper surface (D) and lower surface (E) (Franklin 10033, CANL). Scales = 1.0 cm in A & B, 0.8 cm in E & F. In maps, blue dots = new records, red dots = previous collections,

***Sclerophora peronella* (Ach.) Tibell**

FIGURE 7C & D.

Sclerophora peronella is listed by the Committee on the Status of Endangered Wildlife in Canada as ‘special concern’ in Canada (COSEWIC 2005). It is reported here for the first time from Quebec and southwestern Nova Scotia. It has previously only been reported in Canada from Cape Breton in Nova Scotia and from British Columbia (Selva 2014). The species is distinguished by apothecia that are <0.9 mm tall, a stalk that is epruinose and reddish centrally transitioning to hyaline near the margins (best seen in a water mount under a compound microscope), the lack of a collar or depression in the excipulum around the stalk, smooth round ascospores that are mostly <3.5 µm in diameter, and *Trentepohlia* photobiont (Selva 2014, Tibell 1999).

Specimens examined. – **CANADA. NOVA SCOTIA.** ANNAPOLIS CO.: Kejimikujik National Park and National Historic Site, along trail at the SW end of Big Dam Lake, 500 m west of the Big Dam parking lot, in an *Acer rubrum* swamp, 17.xi.2016, lignicolous on the heartwood of a live *Acer rubrum*, R.T. McMullin et al. 18804 (CANL). **QUEENS COUNTY:** Kejimikujik National Park and National Historic Site, Kejimikujik Lake, along the NE shore of Freeman Island, 15.xi.2016, lignicolous on the heartwood of a live *Acer rubrum*, R.T. McMullin et al. 18803 (CANL). **QUEBEC.** M.R.C. DE LA HAUTE-GASPÉSIE: Parc national de la Gaspésie, along Rivière Sainte-Anne at Petit Saut, off trail ~50 m N of the northernmost cabin, a mature mixed-wood forest in the river valley dominated by *Abies balsamea*, *Betula alleghaniensis*, and *Picea mariana*, 22.ix.2017, lignicolous in the hollow of a live *Betula alleghaniensis*, R.T. McMullin et al. 18802 (CANL; ver. S.B. Selva).

***Sphaerophorus fragilis* (L.) Pers.**

FIGURE 7E.

A specimen identified as *Sphaerophorus globosus* (Huds.) Vain. from CANL was reidentified as *S. fragilis*, which is a new record for Ontario. *Sphaerophorus globosus* differs from *S. fragilis* by having an I+ blue (vs. I-) medulla and it has larger main branches with smaller side branches, rather than branches with a similar diameter throughout (Thomson 1984, Tibell 1975).

Specimen examined. – **CANADA. ONTARIO. KENORA DISTRICT:** Hudson Bay Lowlands, ~65 km S of Hudson Bay and ~83 km ESE of Peawanuck along the Winisk River, 6.v.2010, saxicolous on a rock outcrop, M. Oldham 37830z (CANL; rev. R.T. McMullin).

***Umbilicaria arctica* (Ach.) Nyl.**

FIGURE 8A-C.

Umbilicaria arctica is widespread in North American arctic and alpine regions (Llano 1950, Thomson 1984). It occurs in the Yukon Territory and Washington State, so it is not surprising that it was also found in British Columbia. The species is similar in appearance to *U. hyperborea* (Ach.) Hoffm. var. *hyperborea*. Both species have a brown and strongly verrucose upper surface with black gyrose apothecia, but *U. hyperborea* var. *hyperborea* has a brown lower surface rather than one that is pigmented black around the umbilicus, then surrounded by a tan area and then a grey area towards the margins (Fig. 8B; Llano 1950, Thomson 1984). *Umbilicaria arctica* was reported by Thomson (1984) from British Columbia on the basis of a collection made by Brodo in 1967 (*Brodo 10981*, CANL) on Haida Gwaii. However, subsequent examination has shown that specimen actually corresponds to *U. hyperborea* var. *hyperborea*. The first confirmed report of *U. arctica* from British Columbia is provided here.

Specimen examined. – **CANADA. BRITISH COLUMBIA. OKANAGAN REGION:** Central Okanagan Regional District, West Kelowna, c. 100 m E of Crystal Mountain Ski Area and c. 100 m W of the Jackpine Forest Service Rd., jackpine meadows and associated mixed forest, elevation between 1225-1332 m, 17.v.2016, G. Scotter JPL0013 (CANL; det. R.T. McMullin).

***Umbilicaria phaea* var. *phaea* Tuck.**

FIGURE 8D-F.

Umbilicaria phaea var. *phaea* is common in western North America and is rare in the eastern parts of the continent (Hestmark 2004, Llano 1950, Thomson 1984). Here the species is newly reported from Ontario. It is characterised by umbilicate monophyllous thalli that are <6(–10) mm in diameter, a smooth brown upper surface with dark cracks, a light to dark brown papillate lower surface that usually lacks rhizines, and a C+ red medulla due to the presence of gyrophoric and lecanoric acids (Fig. 8F; Hestmark 2004, Llano 1950, Thomson 1984).

Specimens examined. – **CANADA. ONTARIO.** PARRY SOUND DISTRICT: Georgian Bay, Shawanaga Islands, E-19, SW shore, ~2.5 from the shore, 19.ix.2016, on exposed non-calcareous rock, *J. Franklin 10031* (CANL), *J. Franklin 10032* (CANL), *J. Franklin-10033* (CANL; det. R.T. McMullin).

***Xanthomendoza weberi* (S.Y. Kondr. & Kärnefelt) L. Lindblom**

FIGURE 7F.

Six previous collections, historical and modern, of *Xanthomendoza weberi* have been reported from Ontario (McMullin et al. 2015). All of these collections were made on the northern shores of Lake Erie and Lake Ontario (McMullin et al. 2015). The collection reported here extends the northern range limit of the species in the province. *Xanthomendoza weberi* is a recent segregate from *X. fulva* (Hoffm.) Søchting, Kärnefelt & S. Kondr. (Lindblom 2006). It is characterized by erect and narrow lobes (<0.2–0.6 mm wide) with dichotomous branching, terminal soralia, and the presence of rhizines (Hinds & Hinds 2007, Lindblom 2006).

Specimen examined. – **CANADA. ONTARIO.** PARRY SOUND DISTRICT: Georgian Bay, Shawanaga Islands, E-19, SW shore, ~2.5 m from the shore, 19.ix.2016, on exposed non-calcareous rock, *J. Franklin 10029* (CANL; det. R.T. McMullin).

ACKNOWLEDGEMENTS

I gratefully acknowledge: Chris Deduke, Colin Freebury, George Scotter, Irwin Brodo, James Lendemer, John Franklin, Michael Oldham, and Stephen Clayden for sending specimens and/or providing collection information; Alain Belliveau, Diane Haughland, Donna Crossland, Ellen Larsen, Geoffrey Levin, Hanna Dorval, Harold Clapp, Ingrid VanderMarel, Jennifer Doubt, Katherine Drotos, Kyle Rowter, Laura Sutin, Lizbeth Elias, Lynn Gillespie, Matthew Smith, Mia King, Nancy Ironside, Paul Sokoloff, Robert Cameron, Richard Caners, Ruth Kaviok, Samantha Godfrey, Steven Selva, and Yolanda Wiersma for accompanying me in the field; Chris Deduke and Jean Gagnon for assisting with determining new provincial records; Irwin Brodo for verifying a specimen of *Lecanora carpinea*; Steven Selva for verifying a specimen of *Sclerophora peronella*; James Lendemer and an anonymous reviewer for improvements to the manuscript; and the Couchiching Conservancy, Government of Nunavut, Ontario BioBlitz, Nancy Ironside, Nature Conservancy of Canada, Nunavut Parks, Parks Canada (specifically the staff at Quttinirpaaq National Park and Kejimikujik National Park and National Historic Site), Polar Continental Shelf Program, and staff at parc national de la Gaspésie (particularly Claude Isabel) for providing collecting permits and financial and/or in-kind support.

LITERATURE CITED

- Anderson, F. 2014. Macrolichens of Nova Scotia: A provisional checklist. Curatorial Report Number 101, Nova Scotia Museum, Halifax. 55 pp.
- Björk, C., T. Goward, and T. Spribille. 2009. New records and range extensions of rare lichens from waterfalls and spray zones in inland British Columbia, Canada. *Evansia* 26: 219–224.
- Brodo, I.M., Sharnoff, S.D. and Sharnoff S. 2001. *Lichens of North America*. Yale University Press, New Haven, Connecticut. 795 pp.
- Brodo, I.M., R.C. Harris, W. Buck, J.C. Lendemer and C.J. Lewis. 2013. Lichens of the Bruce Peninsula, Ontario: Results from the 17th Tuckerman Workshop, 18–22 Sept. 2008. *Opuscula Philolichenum* 12: 198–232.
- Clayden, S.R. 1998. Thallus initiation and development in the lichen *Rhizocarpon lecanorinum*. *New Phytologist* 139: 685–695.
- Coppins, B.J. 2009. *Micarea*. In: C.W. Smith, A. Aptroot, B.J. Coppins, A. Fletcher, O.L. Gilbert, P.W. James and P.A. Wolseley (eds.). *Lichens of Great Britain and Ireland*. British Lichen Society, London. pp. 583–606.

- Coppins, B.J. and A. Aptroot. 2009. *Arthonia*. In: C.W. Smith, A. Aptroot, B.J. Coppins, A. Fletcher, O.L. Gilbert, P.W. James and P.A. Wolseley (eds.). *Lichens of Great Britain and Ireland*. British Lichen Society, London. p. 170.
- Coppins, B.J., C. Scheidegger and A. Aptroot. 2009. *Buellia*. In: C.W. Smith, A. Aptroot, B.J. Coppins, A. Fletcher, O.L. Gilbert, P.W. James and P.A. Wolseley (eds.). *Lichens of Great Britain and Ireland*. British Lichen Society, London. p. 235.
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2005. COSEWIC assessment and status report on the frosted glass-whiskers *Sclerophora peronella* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 28 pp.
- Consortium of North American Lichen Herbaria (CNAHL). 2017. Consortium of North American Lichen Herbaria. <http://lichenportal.org/portal/> (accessed: October, 2017).
- Culberson, C.F. and Kristinsson, H. 1970. A standardized method for the identification of lichen products. *Journal of Chromatography* 46: 85–93.
- Czarnota, P. 2007. The lichen genus *Micarea* (Lecanorales, Ascomycota) in Poland. *Polish Botanical Studies* 23: 1–199.
- Ecological Stratification Working Group. 1995. A National Ecological Framework for Canada. Agriculture and Agri-Food Canada, Research Branch, Centre for Land and Biological Resources Research, and Environment Canada, State of the Environment Directorate, Ecozone Analysis Branch, Ottawa/Hull. Report and national map at 1:7,500,000 scale. Available: <http://www.nrcan.gc.ca/forests/measuring-reporting/classification/13179> [accessed: April, 2017].
- Esslinger, T.L. 1977. A chemosystematic revision of the brown *Parmeliae*. *Journal of the Hattori Botanical Laboratory* 42: 1–211.
- Esslinger, T.L. 1978. A new status for the brown *Parmeliae*. *Mycotaxon* 7: 45–54.
- Fletcher, A., O.L. Gilbert, S. Clayden and A.M. Fryday. 2009. *Rhizocarpon*. In: C.W. Smith, A. Aptroot, B.J. Coppins, A. Fletcher, O.L. Gilbert, P.W. James and P.A. Wolseley (eds.). *Lichens of Great Britain and Ireland*. British Lichen Society, London. pp. 792–808.
- Freebury, C.E. 2011. The lichens of Gatineau Park, Quebec. *Trail & Landscape* 45: 50–68.
- Freebury, C.E. 2014. Lichens and lichenicolous fungi of Grasslands National Park (Saskatchewan, Canada). *Opuscula Philolichenum* 13: 102–121.
- Goward, T., I.M. Brodo and S.R. Clayden. 1998. *Rare Lichens of Canada. A Review and Provisional Listing*. Committee on the Status of Endangered Wildlife in Canada, Ottawa. 74 pp.
- Hansen, E.S. and J. Andersen. 1995. *Greenland Lichens*. Atuagkat, Rhodos and Danish Polar Center. Copenhagen 124 pp.
- Harris, R.C. 2015. *Lichens of the Straits Counties, Michigan, Second Edition*. Published by the author, New York Botanical Garden, 134 pp.
- Harris, T.B., F.C. Olday, and N. Rajakaruna. 2007. Lichens of Pine Hill, a peridotite outcrop in eastern North America. *Rhodora* 109: 430–447.
- Hawksworth, D.L. and M.A. Sherwood. 1981. A reassessment of three widespread resinicolous discomycetes. *Canadian Journal of Botany* 59: 357–372.
- Hestmark, G. 2004. *Umbilicaria*. In: T.H. Nash III, B.D. Ryan, P. Diederich, C. Gries and F. Bugartz (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 2*. Lichens Unlimited, Tempe, Arizona. pp. 548–556.
- Hinds, J.W. and P.L. Hinds. 2007. The macrolichens of New England. *Memoirs of the New York Botanical Garden* 96: 1–584.
- Imshaug, H.A. and I.M. Brodo. 1966. Biosystematic studies on *Lecanora pallida* and some related lichens in the Americas. *Nova Hedwigia* 12: 1–59.
- Jahns, H.M. 1970. Remarks on the European and North American species of *Pilophorus* Th. Fr. *The Lichenologist* 4: 199–213.
- Jahns, H.M. 1981. The genus *Pilophorus*. *Mycotaxon* 13: 289–330.
- Knudsen, K. 2007. *Acarospora*. In: T.H. Nash III, C. Gries and F. Bugartz (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 3*. Lichens Unlimited, Tempe, Arizona. pp. 28–29.
- Lendemer, J.C. 2011. A review of the morphologically similar species *Fuscidea pusilla* and *Ropalospora viridis* in eastern North America. *Opuscula Philolichenum* 9: 11–20.
- Lendemer, J.C. 2013. A monograph of the crustose members of the genus *Lepraria* Ach. s. str. (Stereocaulaceae, Lichenized Ascomycetes) in North America north of Mexico. *Opuscula Philolichenum* 12: 27–141.
- Lendemer, J.C. and R.C. Harris. 2013. *Buellia sharpiana* (Physciaceae, lichenized Ascomycetes), another new species from the Great Smoky Mountains of eastern North America. *Castanea* 78: 148–153.
- Lendemer, J.C., R.C. Harris and E.A. Tripp. 2013. The lichens and allied fungi of Great Smoky Mountains National Park: An annotated checklist with comprehensive keys. *Memoirs of The New York Botanical Garden* 104: 1–152.
- Lindblom, L. 2006. *Xanthomendoza galericulata*, a new sorediate lichen species, with notes on similar species in North America. *The Bryologist* 109: 1–8.

- Llano, G.A. 1950. *A Monograph of the Lichen Family Umbilicariaceae in the Western Hemisphere*. Navexos P-831. Office of Naval Research, Washington, D.C. 281 pp.
- Macoun, J. 1902. *Catalogue of Canadian Plants. Part VII. Lichens and Hepaticae*. Government Printing Bureau, Ottawa, ON. xix + 318 pp.
- McCarthy, J.W., K.E. Driscoll and S.R. Clayden. 2015. Lichens in four Newfoundland provincial parks: new provincial records. *Canadian Field-Naturalist* 129: 219–228.
- McMullin, R.T. 2009. Lichens of Kejimikujik National Park and National Historic Site, Nova Scotia, Canada (Provisional List). *Opuscula Philolichenum* 7: 71–78.
- McMullin, R.T. 2015. The lichens of Prince Edward Island, Canada: a second checklist, with species ranked for conservation status. *Rhodora* 117: 454–484.
- McMullin, R.T. and A. Arsenault. 2016. The calicioids of Newfoundland, Canada. *Opuscula Philolichenum* 15: 92–104.
- McMullin, R.T. and J.C. Lendemer. 2013. Lichen biodiversity and conservation status in the Copeland Forest Resources Management Area: A lichen-rich second-growth forest in southern Ontario. *Canadian Field-Naturalist* 127: 240–254.
- McMullin, R.T. and J.C. Lendemer. 2016. Lichens and allied fungi of Awenda Provincial Park, Ontario: Diversity and conservation status. *American Midland Naturalist* 176: 1–19.
- McMullin, R.T. and Y.F. Wiersma. 2017. Lichens and allied fungi of Salmonier Nature Park, Newfoundland. *The Journal of the Torrey Botanical Society* 144: 357–369.
- McMullin, R.T., J. Maloles and S.G. Newmaster. 2015. New and interesting lichens from Ontario, Canada II. *Opuscula Philolichenum* 14: 93–108.
- McMullin, R.T., S.R. Clayden, S.B. Selva, R. Curley and L.J. Schram. 2012. The first lichen checklist for Prince Edward Island, Canada. *Evansia* 29: 4–25.
- McMullin, R.T., P.N. Duinker, R.P. Cameron, D.H.S. Richardson and I.M. Brodo. 2008. Lichens of coniferous old-growth forests of southwestern Nova Scotia, Canada. Diversity and present status. *The Bryologist* 111: 620–637.
- McMullin, R.T., J. Gagnon, F. Anderson, W.R. Buck, S.R. Clayden, B.C. Dorin, A. Fryday, J.G. Guccion, R.C. Harris, J. Hinds, C. Isabel, D. Ladd, E. Lay, J.C. Lendemer, J.R. Maloles, C. Roy and D.P. Waters. 2017. One hundred new provincial, national, and continental lichen and allied fungi records from parc national de la Gaspésie, Québec, Canada. *Northeastern Naturalist* 24(4): 446–466.
- Newmaster, S.G., A. Lehela, P.W.C. Uhlig, S. McMurray and M.J. Oldham. 1998. *Ontario Plant List*. Forest Research Information Paper No. 123, Ontario Forest Research Institute, Ontario Ministry of Natural Resources, Sault Ste. Marie, Ontario. 550 pp.
- Orange, A., James, P. W. and White, F.J. 2001. *Microchemical Methods for the Identification of Lichens*. British Lichen Society, London, UK. 101 pp.
- Piercey-Normore, D., I.M. Brodo and C. Deduke. 2016. Lichens on the Hudson Bay Lowlands: a long-term survey in Wapusk National Park, Manitoba. *The Lichenologist* 48: 581–592.
- Poelt, J. 1988. *Rhizocarpon* Ram. em. Th.Fr. subgen. *Rhizocarpon* in Europe. *Arctic and Alpine Research* 20: 292–298.
- Rajakaruna, N., T.B. Harris, S.R. Clayden, A.C. Dibble, and F.C. Olday. 2011. Lichens of the Callahan Mine, a copper- and zinc-enriched Superfund site in Brooksville, Maine, U.S.A. *Rhodora* 113: 1–31.
- Rowe, J.S. 1972. *Forest Regions of Canada*. Department of Environment, Canadian Forest Service, Ottawa, Ontario, Publication No. 1300. 172 pp. plus map at 1:6,500,000 scale. <http://www.nrcan.gc.ca/forests/measuring-reporting/classification/13179> (accessed: April, 2017).
- Ryan, B.D., H.T. Lumbsch, M.I. Messuti, C. Printzen, L. Śliwa and T.H. Nash. 2004. *Lecanora*. In: T.H. Nash III, B.D. Ryan, P. Diederich, C. Gries and F. Bugartz (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 2*. Lichens Unlimited, Tempe, Arizona. pp. 177–286.
- Selva, S.B. 2014. The calicioid lichens and fungi of the Acadian Forest ecoregion of northeastern North America, II. The rest of the story. *The Bryologist* 117: 336–367.
- Sheard, J.W. 1969. Four previously misinterpreted *Buellia* species from North America. *The Bryologist* 72: 220–224.
- Sheard, J.W. 2010. *The Lichen Genus Rinodina (Lecanoromycetidae, Physciaceae) in North America, North of Mexico*. National Research Council of Canada, NRC Research Press, Ottawa. 246 pp.
- Shorthouse, D.P. 2010. SimpleMappr, an online tool to produce publication-quality point maps. <http://www.simplemappr.net>. (accessed: October 2017).
- Spribille, T., C.R. Björk, S. Ekman, J.A. Elix, T. Goward, C. Printzen, T. Tønsberg and T. Wheeler. 2009. Contributions to an epiphytic lichen flora of northwest North America: I. Eight new species from British Columbia inland rain forests. *The Bryologist* 112: 109–137.
- Statistics Canada. 2016. Estimates of population, Canada, provinces and territories. <http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=0510005&paSer=&pattern=&stByVal=1&p1=1&p2=31&tabMode=dataTable&csid=> (accessed: October 2017).
- Sundin, R. 1999. Phylogenetic and taxonomic studies within *Arthonia* Ach. (Ascomycetes, Arthoniales). PhD Thesis, Botaniska Institutionen, Stockholm University. 85 pp.
- Thomson, J.W. 1984. *America Arctic Lichens 1. The Macrolichens*. Columbia University Press, New York. 504 pp.

- Thomson, J.W. 1997. *America Arctic Lichens 2. The Microlichens*. The University of Wisconsin Press, Madison, Wisconsin. 675 pp.
- Tibell, L. 1975. The Caliciales of boreal North America. *Symbolae Botanicae Upsalienses* 21: 1–128.
- Tibell, L. 1978. The genus *Microcalicium*. *Botaniska Notiser* 131: 229–246.
- Tibell, L. 1999. Calicioid lichens and fungi. *Nordic Lichen Flora* 1: 20–94.
- Timdal, E. 1986. A revision of *Psora* (Lecideaceae) in North America. *The Bryologist* 89: 253–275.
- Westberg, M. 2004. *Candelariella*. In: T.H. Nash III, B.D. Ryan, P. Diederich, C. Gries and F. Bugartz (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 2*. Lichens Unlimited, Tempe, Arizona. pp. 46–53.
- Westberg, M., C.A. Morse and M. Wedin. 2011. Two new species of *Candelariella* and a key to the Candelariales (lichenized Ascomycetes) in North America. *The Bryologist* 114: 325–334.
- Willey, H. 1887. *An Introduction to the Study of Lichens*. Printed for the author by E. Anthony & Sons Printers, New Bedford, Massachusetts. 72 pp.
- World Atlas. 2017. The largest countries in the world. <http://www.worldatlas.com> (accessed: October 2017).

Stigmidium rouxianum (Mycosphaerellaceae, Dothideomycetes), reported new for North America and California

JANA KOCOURKOVÁ^{1*} AND KERRY KNUDSEN²

ABSTRACT. – *Stigmidium rouxianum* is a member of the *S. psorae* group with 1-septate hyaline ascospores, a net of interascal filaments, and an absence of periphysoids. *Stigmidium rouxianum* was described from Europe where it has been reported growing on *Acarospora cervina*. In North America it was collected in California on *A. obpallens*.

KEYWORDS. – Channel Islands, Joshua Tree National Park, lichenicolous fungi, *Stigmidium fuscatae*.

INTRODUCTION

Stigmidium Trevis. is a genus of lichenicolous ascomycetes currently placed in the family Mycosphaerellaceae, which in turn is included in the Dothideomycetes (Hyde et al. 2013). No phylogenetic analysis of *Stigmidium* has been published to verify the current placement of the genus in the Mycosphaerellaceae (Hyde et al. 2013). *Stigmidium* is heterogeneous and includes species with three different types of hamathecium (Calatayud & Triebel 2003, Hawksworth, *pers. comm.*, Kocourková & Knudsen 2009). The type of the genus is *S. schaereri* (A. Massal.) Trevis., a species occurring on *Solorina*. *Stigmidium* s. str. is defined by 1-septate hyaline or subhyaline ascospores, a hamathecium of external periphyses, short two-celled periphysoids pendant from the ceiling of the perithecioid ascomata, and no interascal filaments (Pérez-Ortega et al. 2010; Hyde et al. 2013). The *S. placynthii* group is distinguished by long periphysoids of 3-to-5 cells instead of two-celled periphysoids (Kocourková & Knudsen 2009, 2012). The *S. psorae* group is distinguished by a net of interascal filaments and the absence of periphysoids (Calatayud & Triebel 2003). The *S. psorae* group currently comprises three species: *S. psorae* (Anzi) Hafellner on *Psora* species, *S. rouxianum* Calatayud & Triebel on *Acarospora* species, and *S. squamarinicola* Calatayud & Triebel on *Squamarina* species (Calatayud & Triebel 2003). Of those three species, only *S. psorae* has been reported from North America (Esslinger 2018). Here we report *S. rouxianum* as new for North America and California, growing on a new host, *Acarospora obpallens* (Nyl. ex Hasse) Zahlbr. (Kocourková et al. 2012). The revised description is provided based on Californian specimens.

MATERIALS AND METHODS

Specimens of *Stigmidium rouxianum* were studied from CFBS, UCR, and the private herbarium Jana Kocourková and Kerry Knudsen (hb. K & K). Hand sections of specimens were studied using standard microscopy and measured in water. The amyloid reaction of the hamathecial gel was tested with

¹JANA KOCOURKOVÁ – Department of Ecology, Faculty of Environmental Sciences, Czech University of Life Sciences, Prague, Kamýcká 129, Praha 6 - Suchbát, CZ–165 00, Czech Republic. – e-mail: kocourkovaj@fzp.czu.cz

²KERRY KNUDSEN – Department of Ecology, Faculty of Environmental Sciences, Czech University of Life Sciences, Prague, Kamýcká 129, Praha 6 - Suchbát, CZ–165 00, Czech Republic.

*author for correspondence

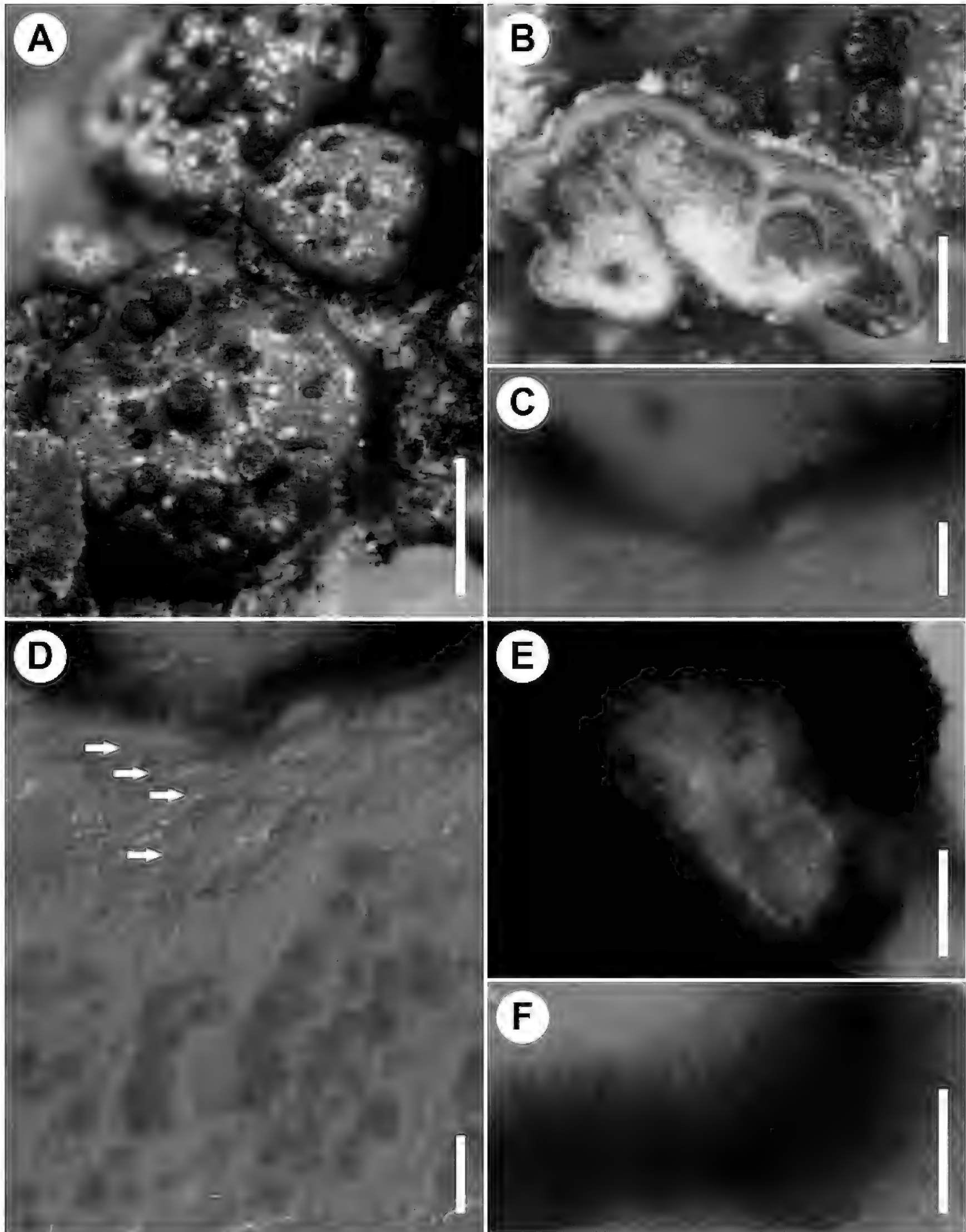


Figure 1. *Stigmidium rouxianum* (Knudsen 13442, UCR). **A**, infected thallus of *Acarospora obpallens*, ascomata. **B**, ascomata originating below the algal layer, eventually sessile. **C**, vegetative hyphae in lactophenol cotton blue. **D**, pseudoparenchymatous wall at base of ascoma in lactophenol cotton blue. **E & F**, external periphyses around the ostiole in water (F squash preparation). Scales: A = 500 μm ; B = 200 μm ; C-F = 20 μm .

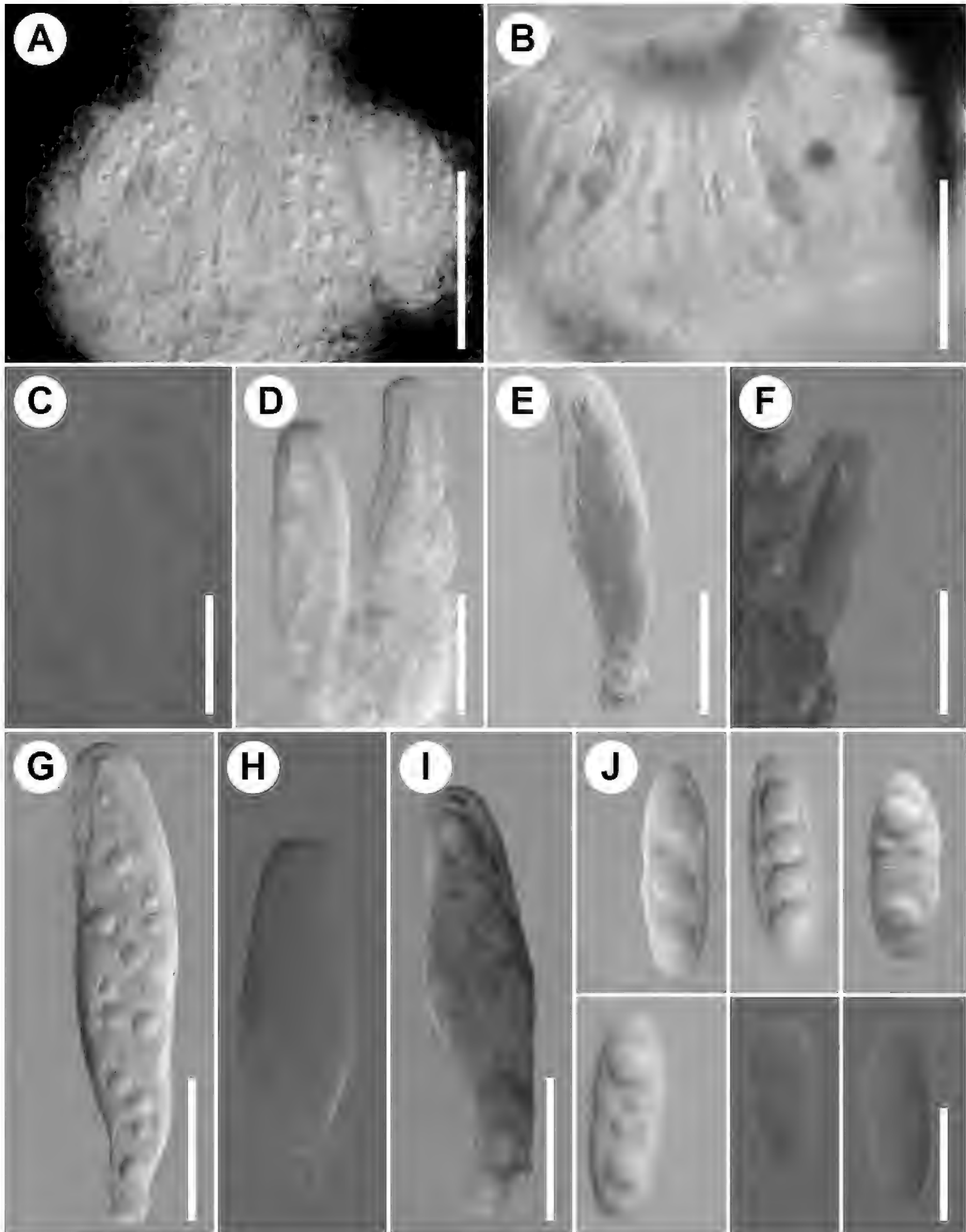


Figure 2. *Stigmidium rouxianum* (Knudsen 13442, UCR). **A**, section of ascoma in water. **B**, section of ascoma in I. **C**, infrequently branched interascal filaments in lactophenol cotton blue. **D**, young asci in water. **E**, young ascus in I. **F**, young ascus in brilliant cresyl blue; **G-I**, nearly mature asci (G, in water; H, in lactophenol cotton blue; I in brilliant cresyl blue). **J**, guttulate ascospores (top and bottom left in water, bottom left two in lactophenol cotton blue). Scales: A, B = 50 μ m, C-I = 20 μ m, J = 10 μ m.

fresh undiluted Merck's Lugol (I) without or with pretreatment of 10% KOH (K/I). Hamathecium was stained with Lactophenol Cotton Blue (LPCB) and Congo Red (CR). Metachromatic reactions were tested with 1% solution of Brilliant Cresyl Blue (BCr). Ascospore measurements were made in water with accuracy of 0.5 μm and given in the form "(minimum–) mean minus standard deviation–mean–mean plus standard deviation (–maximum) and followed by the number of measurements (n); the length/breadth ratio of ascospores is indicated as l/b and given in the same way. Macro and microphotographs were taken with a digital camera Olympus DP72 on an Olympus SZX 7 Stereomicroscope and an Olympus BX 51 compound microscope fitted with a Nomarski differential interference contrast.

TAXONOMIC SECTION

***Stigmidium rouxianum* Calatayud & Triebel**, Lichenologist 35(2): 109 (2003). **TYPE: SPAIN.** ARAGON: Prov. Teruel, Sierra de Javalambre, La Puebla de Valverde, Escarbadero de los Lobos, U.T.M. 30TXK7043, c. 1700 m, on the thallus and apothecia of *Acarospora cervina*, on calcareous rocks, 20.vi.1997, V. Calatayud 123 & P. L. Nimis (M-003146, holotype (n.v.); hb. Calatayud, isotype). (Figs. 1 & 2)

DESCRIPTION. – *Vegetative hyphae* immersed in the thallus, hyaline, 3–7 μm wide (Fig. 1C), observed in LPCB. *Ascomata* perithecioid, abundant, dispersed to occasionally aggregated in groups of 2 to 3, black, globose to subglobose, occasionally flattened, conspicuously ostiolate, 110–170 μm high, 140–180 μm wide (Fig. 1A), emergent, originating below the algal layer of the host, becoming semi-immersed to eventually sessile (Fig. 1B). *Exciple* pseudoparenchymatous, of *textura angularis*, in upper half dark brown, in lower half pale brown, of 2–3 layers of cells, 4–8 \times 4–6 μm (Fig. 1D). *External periphyses* scarce, short, 1-celled, brown (Fig. 1E, F). *Hamathecium of interascal filaments* (Fig. 2C) long, derived from lower wall of ascomatal cavity, branched, occasionally anastomosed, with cells 4–10 μm long, 1–4 μm wide, abundant in young ascomata, compressed among asci. *Asci* originating from the lower wall of ascomatal cavity (Fig. 2A, B), cylindrical to narrowly saccate, shortly stipitate, apex of endoascus distinctly truncate when ascus immature, 6–8 spored, with ascospores irregularly arranged, (41–)49.5–59–68(–74) \times (13–)14.5–16–17.5(–18) μm (n = 11) (Fig. 2D–I). *Ascospores* 1-septate, not usually pseudotetrablastic, hyaline, without or with a gelatinous sheath 0.5 μm wide, of equal cells, slightly constricted at septum or not, guttulate, with a large guttula and rarely with several small guttules in every cell, (13.5–)16–17.5–19(–21) \times 5.5–6–6.5 μm (n = 40); l/b = (2.3–)2.7–2.9–3.2(–3.5) (Fig. 2J). *Conidiomata* not seen. *Reactions*. Hymenial gel I–, K/I–, BCr–. Interascal filaments, ascoplasma and ascospore endoplasma I + red (dextrinoid) (Fig. 2B, E), K/I+ red; endoascus BCr+ blue but beak BCr– (Fig. 2F), ascospore wall BCr– (Fig. 2I); CR+ red.

DISTRIBUTION AND ECOLOGY. – Europe on *Acarospora cervina* (Ukraine, Spain, France, Italy, Switzerland, the Czech Republic, Romania, and Russia) (Bielzyk et al. 2005; Calatayud & Triebel 2003; Khodosovtsev et al. 2007; Urbanavichus et al. 2011; Vondrák 2006; Vondrák & Šoun 2007). North America on *Acarospora obpallens* (California).

DISCUSSION. – *Stigmidium rouxianum* is a member of the *S. psorae* group with a net of interascal filaments. It differs especially from the other two members of *S. psorae* group, *S. squamarinicola* and *S. psorae*, in not producing an I+ violet reaction of the hymenial gel. The interascal filaments are best observed around immature asci in LPCB or another stain. When the centrum of the ascoma becomes filled with mature asci they are broken off and dissolve in the hymenial gel. *Stigmidium fuscatae* (Arnold) R. Sant. occurs on *Acarospora fuscata* (Schr.) Arnold and could be confused with *S. rouxianum*. Larger ascospores distinguish *S. rouxianum* from *S. fuscatae* ((13.5–)16–17.5–19(–21) \times 5.5–6–6.5 μm in *S. rouxianum* vs. (8–)10–12 \times 4–5(–5.5) μm in *S. fuscatae*). *Stigmidium epixanthum* Hafellner is another member of the genus that while it does not belong to the *S. psorae* group, does occur on several different species of yellow *Acarospora* around the world (Hafellner et al. 2002, Triebel & Cáceres 2002). Given that *S. epixanthum* occurs on multiple host species of yellow *Acarospora*, it is not surprising that *S. rouxianum* also occurs on multiple species of brown *Acarospora*. We would expect *S. rouxianum* to be found on other species of *Acarospora*.

*North American specimens examined (all on thalli of *Acarospora obpallens*). – U.S.A. CALIFORNIA. ORANGE CO.: Santa Ana Mountains, Fremont Canyon, 33°49'36"N, 117°40'32"W, 608 m, 16.vi.2005, K. Knudsen et al. 3405 (UCR, hb. Etayo). SANTA BARBARA CO.: Channel Islands National Park, Santa Rosa Island, above Main Rd. between Cherry Canyon and bridge, 34°00'01"N 120°03'30"W, 44 m, 20.x.2006, K. Knudsen 7848 (UCR); Channel Islands National Park, Santa Rosa Island, South Point, 33°54'27"N, 120°07'34"W, 198 m, 14.vi.2009, K. Knudsen 11411.2 & S. Chaney (UCR), K. Knudsen 11413 & S. Chaney (UCR). SAN BERNARDINO CO.: Joshua Tree National Park, Indian Cove, N-facing slope of Wonderland of Rocks, 34°05'11.6"N, 116°8'34.6"W, 920 m, 28.xii.2010, K. Knudsen 13422 (NY, UCR, hb. K & K).*

*European specimens examined for comparison (all on thalli of *Acarospora cervina*). – CZECH REPUBLIC. SOUTHERN MORAVIA: Pálava Hills, Mikulov, Kočičí skála Nature Monument, 362 m, 48°49'33.98"N, 16°38'30.35"E, on calcareous outcrop in steppe, 31.iii.2017, J. Kocourková et al. 9443 (hb. K & K); Mikulov, southern peak of Mt. Šibeničník ca. 2 km S of the town, 238 m, 48°47'15.2"N, 16°37'48.0"E, 14.iv.2005, J. Vondrák 3887 & J. Šoun (CBFS). HUNGARY. BORSOD-ABAÚJ-ZEMPLEN: Bükk Mts, Miskolc, Mályinka, rocks on E-slope below ruin Dédesvár, ca. 570 m, 14.v.2006, on sun-exposed limestone rock, J. Vondrák 4407 & J. Šoun (CBFS). RUSSIA. CRIMEAN PENINSULA: Alupka, Aj-Petrinskaja jajla Mts., ca. 1 km SE of Mt. Bedene-Kyr, c. 1100 m, 44°28'28.25"N, 34°01'46.16"E, 11.vi.2006, J. Vondrák 4589 & J. Šoun (CBFS).*

ACKNOWLEDGEMENTS

We thank our reviewers. The work of Jana Kocourková was supported financially by the KONTAKT II Program of International Cooperation in Research and Development for scientific cooperation between the Czech Republic and USA, LH 11057 from Ministry of Education, Youth and Sports. The work of Kerry Knudsen was financially supported by 42900/1312/3166 [Environmental aspects of sustainable development of society], a grant from the Faculty of Environmental Sciences, Czech University of Life Sciences Prague.

LITERATURE CITED

- Bielczyk, U., E. Bylińska, P. Czarnota, K. Czyżewska, B. Guzew-Krzemińska, M. Hachulka, J. Kiszka, A. Kowalewska, B. Krzewicka, M. Kukwa, G. Leśniński, L. Śliwa and A. Zalewska. 2005. Contribution to the knowledge of lichens and lichenicolous fungi of western Ukraine. *Polish Botanical Journal* 50: 39–64.
- Calatayud, V. and D. Triebel. 2003. Three new species of *Stigmidium* s. l. (lichenicolous ascomycetes) on *Acarospora* and *Squamarina*. *Lichenologist* 35: 103–116.
- Esslinger, T.L. 2018. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. Version#22. *Opuscula Philolichenum* 17: 6–268.
- Hafellner, J., D. Triebel, B.D. Ryan and T.H. Nash III. 2002. On lichenicolous fungi from North America. II. *Mycotaxon* 84: 293–329.
- Hyde, K.D., E.B.G. Jones, J.-K. Liu, H. Ariyawansa, E. Boehm, S. Boonmee, U. Braun, P. Chomnunti, P.W. Crous, D.-Q. Dai, P. Diederich, A. Dissanayake, M. Doilom, F. Doveri, S. Hongsan, R. Jayawardena, J.D. Lawrey, Y.-M. Li, Y.-X. Liu, R. Lücking, J. Monkai, L. Muggia, M.P. Nelsen, K.L. Pang, R. Phookamsak, I.C. Senanayake, C.A. Shearer, S. Suetrong, K. Tanaka, K.M. Thambugala, N.N. Wijayawardene, S. Wikee, H.-X. Wu, Y. Zhang, B. Aguirre-Hudson, S.A. Alias, A. Aptroot, A.H. Bahkali, J.L. Bezerra, D.J. Bhat, E. Camporesi, E. Chukeatirote, C. Gueidan, D.L. Hawksworth, K. Hirayama, S. De Hoog, J.-C. Kang, K. Knudsen, W.-J. Li, X.-H. Li, Z.-Y. Liu, A. Mapook, E.H.C. McKenzie, A.N. Miller, P.E. Mortimer, A.J.L. Phillips, H.A. Raja, C. Scheuer, F. Schumm, J.E. Taylor, Q. Tian, S. Tibpromma, D.N. Wanasinghe, Y. Wang, J.-C. Xu, S. Yacharoen, J.-Y. Yan and M. Zhang. 2013. Families of Dothideomycetes. *Fungal Diversity* 63: 1–313.
- Khodosovtsev, A., J. Vondrák and J. Šoun. 2007. New lichenized and lichenicolous fungi for the Crimean Peninsula (Ukraine). *Chornomors'kij Botanichnij Zhurnal* 3: 109–118.
- Kocourková, J. and K. Knudsen. 2009. A new species of *Stigmidium* (Mycosphaerellaceae, Ascomycetes) from western North America. *Czech Mycology* 61: 73–80.
- Kocourková, J. and K. Knudsen. 2012. A new species of *Stigmidium* (Mycosphaerellaceae) on *Aspicilia* from North America. *Mycotaxon* 121: 45–52.
- Kocourková, J., K. Knudsen and S. Tucker. 2012. A Checklist of the Lichenicolous Fungi Biota of California. *Opuscula Philolichenum* 11: 64–103.
- Pérez-Ortega, S., M.G. Halici, K. Knudsen and M. Candan. 2010. A new species of *Stigmidium sensu stricto* on *Thelenella muscorum*. *The Lichenologist* 42: 397–403.

- Triebel, D. and M.E.S. Cáceres. 2004. *Stigmidium*. In: T.H. Nash III, B.D. Ryan, P. Diederich, C. Gries and F. Bungartz (eds.), *Lichen Flora of the Greater Sonoran Desert Region, Volume 2*. Lichens Unlimited, Tempe. pp. 703–707.
- Urbanavichus, G., A. Gabibova and A. Ismailov. 2011. New records of lichens and lichenicolous fungi for Russia and the Caucasus. *Turkish Journal of Botany* 35: 291–297.
- Vondrák, J. 2006. *Lichenostigma* aff. *elongatum* a *Stigmidium rouxianum*, dva druhy lichenikolních hub zjištěných na *Acarospora cervina* v ČR [*Lichenostigma* aff. *elongatum* and *Stigmidium rouxianum*, two species of lichenicolous fungi found on *Acarospora cervina* in the Czech Republic]. *Bryonora* 37: 7–9.
- Vondrák, J. and J. Šoun. 2007. Some newly recorded and noteworthy lichen-forming and lichenicolous fungi from Romania. *Acta Botanica Hungarica* 50: 215–221.

Diversity and floristic patterns of epiphytic macrolichens on white oak in the Klamath-Siskiyou region

JOHN VILLELLA^{1*}, TOM CARLBERG², DAPHNE STONE³, JESSE E.D. MILLER⁴, NILS NELSON⁵ AND LALITA CALABRIA⁶

ABSTRACT. – White oak (*Quercus garryana*) plant communities are one of the most threatened habitat types in the Pacific Northwest, and often host diverse and characteristic epiphyte communities. In order to better understand the diversity and floristic patterns of epiphytic macrolichens of these habitats in the Klamath-Siskiyou region we studied lichen communities in 52 plots within the Cascade-Siskiyou National Monument (CSNM). We report a rich flora of 96 species of epiphytes on *Quercus garryana*. Macrolichen species richness in the plots ranged between 12 and 49 species with an average of 24.7 species per plot. The most species-rich genera in descending order were: *Usnea*, *Physconia*, *Physcia*, *Hypogymnia*, *Melanohalea*, *Peltigera*, *Bryoria*, *Lobaria* and *Scytinium*. We found three rare species that are listed by the Oregon Biodiversity Information Center: *Hypotrachyna revoluta* (S3-vulnerable), *Collema curtisporum* (S1-critically imperiled), and *Rostania quadrifida* (S2-imperiled). *Placidium fingeni* was recorded for the first time as an epiphyte in Oregon. We observed floristic patterns that indicate a mix of lichens from six distinct geographic floristic groups. Of these, the California Madrean floristic group had the fewest representative species but nonetheless included a number of species rare in Oregon such as *Melanelixia californica*, *Physconia californica* and *P. fallax*. We discuss how these new findings influence our current knowledge of oak lichen communities and dispersal corridors within the Klamath-Siskiyou region.

KEYWORDS. – California flora, biogeography, biodiversity, Siskiyou crest, woodlands, land bridge, Klamath River

INTRODUCTION

Oaks are a globally significant substrate for lichens, often hosting diverse communities and locally rare species (e.g. Kappelle & Sipman 1992; Upreti & Chatterjee 2000; Oran & Öztürk 2012; Villella et al. 2013b; Pérez-Pérez et al. 2015; Marmor et al. 2017; El Mokni et al. 2018). Oak-dominated habitats are often subject to intense anthropogenic influences that have substantial effects on lichen communities, such as burning, urbanization, and conversion to agriculture (van Herk 2001; Insarov et al. 2010; Aguilhaume et al. 2017; Güvenç & Öztürk 2017). In the Pacific Northwest humans have recently repressed wildfires in oak-dominated habitats leading to invasion by other tree species, such as conifers (Sugihara and Reed 1987; Engber et al. 2011). This region has seen a significant loss of white oak habitats; Washington State currently retains just nine percent of the oak savannah it contained before Euro-American settlement

¹JOHN VILLELLA*– Siskiyou Biosurvey, 324 Avery St., Ashland, Oregon 97520, U.S.A. – e-mail: jvillella@siskiyoubiosurvey.com.

²TOM CARLBERG– California Academy of Sciences, San Francisco, California 94118, U.S.A. – e-mail: tcarlberg@calacademy.org.

³DAPHNE STONE– 30567 Le Bleu Rd., Eugene, Oregon 97405, U.S.A. – e-mail: daphstone@gmail.com

⁴JESSE E.D. MILLER– Dept. of Environmental Science and Policy, University of California, Davis, 1 Shields Ave., Davis, California 95616, U.S.A. – e-mail: jedmiller@ucdavis.edu.

⁵NILS NELSON– 349 ½ N Main St., Ashland, Oregon 97520, U.S.A. – e-mail: nilscbnelson@gmail.com

⁶LALITA CALABRIA– The Evergreen State College, 2700 Evergreen Pky. NW, Olympia, Washington 98505, U.S.A. – e-mail: calabril@evergreen.edu.

*corresponding author

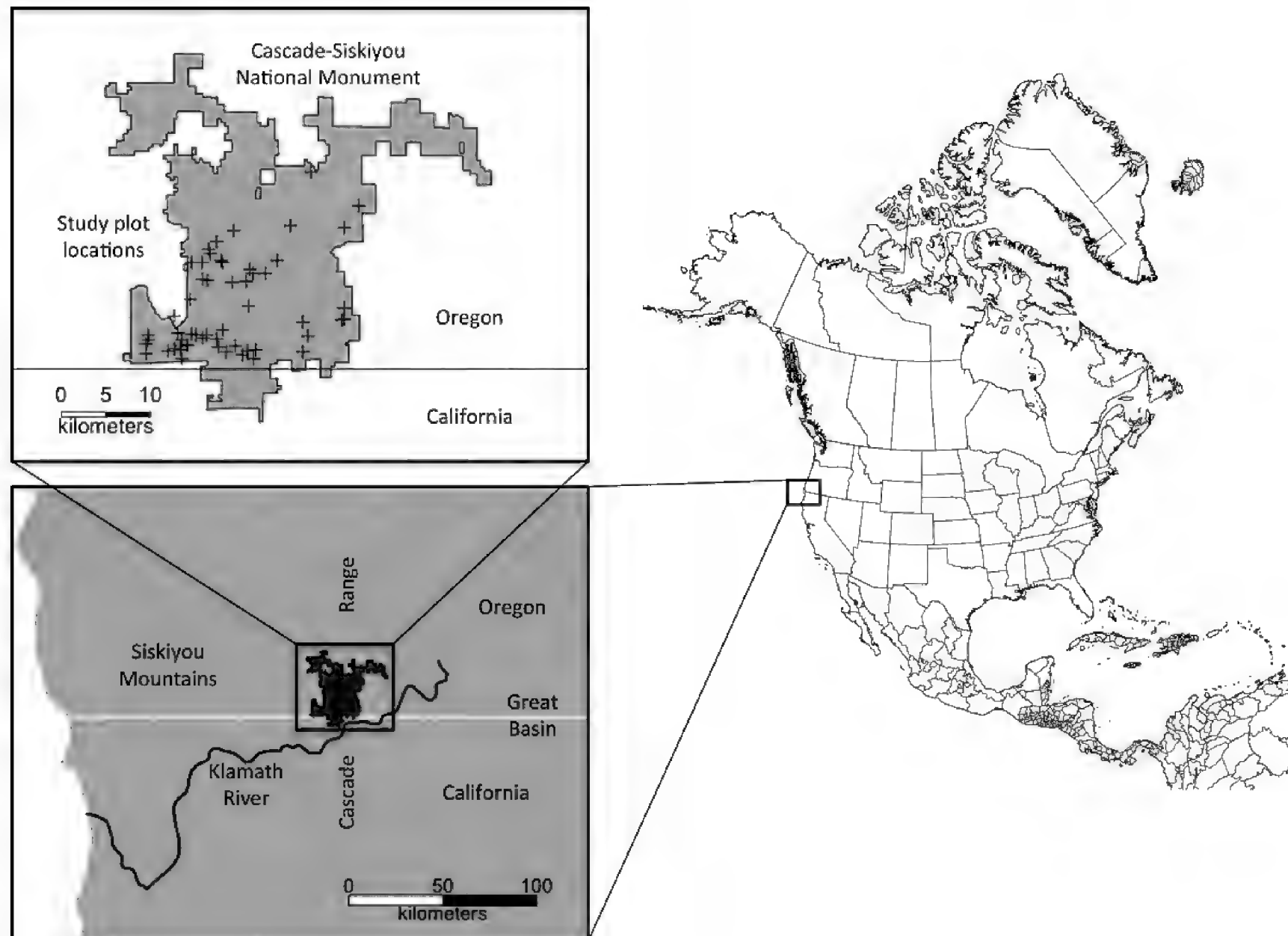


Figure 1. Location of Cascade-Siskiyou National Monument with plot locations depicted by a plus (+).

(Dunwiddie & Bakker 2011) and the reintroduction of prescribed fire has potential to threaten ground layer lichen and bryophyte communities in the remaining patches of oak prairie (Calabria et al. 2015). The Willamette Valley in northwest Oregon historically contained sixty-four percent white oak habitat (Christy & Alverson 2011), but now only one percent of the area remains in this vegetation type (Noss & Peters 1995). In California, oak lichens are threatened by air pollution, where estimates show that at least one third of the area occupied by these habitats exceed critical loads of airborne toxins (Fenn et al. 2014). These trends contribute to making white oak-dominated plant communities one of the most threatened habitat types in the Pacific Northwest (Dunwiddie & Bakker 2011).

White oak habitats in the Klamath-Siskiyou area of southwestern Oregon seem to have fared better, despite experiencing some anthropogenic alteration including shrub removal and grazing (DiPaolo & Hosten 2015). The oak habitats of the valley bottoms have been significantly impacted by urbanization and agriculture and have been identified as in need of conservation (Duren et al. 2012). This region sits at the intersection of several distinct ecoregions and is one of the most biodiverse regions in North America (DellaSala et al. 1999), in part because of its high geologic and topographic diversity and numerous vegetation types (Copeland & Harrison 2014). Major landscape features such as the Klamath River, that cuts across the Cascade Mountains from the desert-like communities to the east, and the Siskiyou crest, that connects the region to the wetter exterior coast ranges to the west, act as dispersal corridors and contribute to the rich variety of species found in the area (Parks et al. 2005). High levels of plant and animal endemism are found here because the area escaped recent glaciation and the rugged topography and geological diversity foster the survival of relict, often disjunct populations (Whittaker 1961; Stebbins & Major 1965; Bury & Pearl 1999; Coleman & Krukeburg 1999; Briles et al. 2005).

The Cascade-Siskiyou National Monument (CSNM) is a 134,774-acre (210 sq. mi.) public land reserve in southwest Oregon and Northwest California administered by the Bureau of Land Management (BLM) that has been designated to preserve the biodiversity of the area (Figure 1). Several studies within the CSNM have noted rare or disjunct populations of lichens, hinting at the significance of the Monument for lichen diversity (Wright 1998, Villella et al. 2010, McCune & Rosentreter 2014, Villella & Sheehy

2016). In this study, we explore white oak-dwelling epiphytic macrolichen species diversity in the CSNM and report new species records. Our findings will help managers develop conservation practices, including strategies for protecting rare species and small populations that occur in oak woodlands.

MATERIALS AND METHODS

We aimed to sample epiphytic lichen communities of *Quercus garryana* across the geographic range of the species within the CSNM. We delineated white oak-dominated habitats using aerial photographs in Google Earth. Within these habitats, we randomly selected approximately four points within each section (square mile) of CSNM. Of these points, 52 locations were selected for sampling because they represented the full spectrum of white oak habitats within CSNM and were deemed accessible by foot. We sampled macrolichens using a study plot design based on the Forest Inventory and Analysis (FIA) lichen plot method (FIA 2011). We used the FIA plot size (3,793 m²), but we only sampled lichens from white oak within these plots.

At each plot a voucher specimen and an abundance estimate were collected for every macrolichen species occurring on white oak. Basic environmental data were recorded including: location, aspect, slope, and elevation. Voucher specimens for all rare or listed sensitive species have been deposited with the Forest Service's Interagency Special Status/Sensitive Species Program (ISSSSP) in the herbarium of Oregon State University (OSC), and at least one representative voucher for all other species encountered has been deposited in the herbarium of The Evergreen State College (EVE).

We queried two online lichen distribution databases, the Consortium of North American Lichen Herbaria (CNALH), and USFS Lichen and Air Quality Database (LAQD) (<http://gis.nacse.org/lichenair/>) along with regional lichen field guides (McCune & Geiser 2009; Sharnoff 2014) to construct distribution maps for each species. We then assigned a geographic floristic group that fit best for every species based on "floristic element" maps for western North America presented by Brodo et al. (2001).

RESULTS

A total of 96 macrolichens were identified from 1,841 collections across 52 plots (Appendix 1). Species richness at the plot level ranged from 12 to 49 species, with an average of 24.7 species per plot (Standard deviation = 7.1). Species found in 80% (41) or more of the plots were *Evernia prunastri*, *Melanohalea elegantula*, *Candelaria pacifica*, *Letharia vulpina*, *Parmelia barrenoae*, *Physconia americana* and *Usnea scabrata*. *Evernia prunastri* was the most frequent lichen occurring in 85% (44) of the plots. The genus with the most species was *Usnea*, making up roughly 10% (10) of the total species diversity. Other diverse genera included *Physconia* 6% (6), *Phycia* 6% (6), *Hypogymnia* 5% (5), *Melanohalea* 5% (5), *Bryoria* (5%), *Peltigera* 5% (5), *Lobaria* 4% (4) and *Scytinium* 4% (4). Forty-two percent (40) of the species were found in 5% (3) or fewer of the plots. Fourteen percent (13) of the species occurred in only one plot. Seventy-nine percent (76) of species were chlorolichens and 21% (20) were cyanolichens.

Macrolichen species that occurred on white oak in the CSNM had distribution patterns from six geographic floristic groups as delimited by Brodo et al. (2001). The breakdown of species per floristic group was as follows: 24% (23) were oceanic, 19% (18) were pan-temperate, 19% (18) were Pacific Northwest temperate, 15% (14) were west temperate, 13% (13) were Cascades-Northern Rockies western montane, and 5% (5) were California Madrean. Three species were listed with the Oregon Biodiversity Information Center and six species were range extensions based on CNALH records (detailed below).

DISCUSSION

The Klamath-Siskiyou region has been identified as a regional diversity hotspot for epiphytic lichens (Jovan 2008). Floristic studies from the region show distinct lichen communities with various dominant floristic affinities ranging from Oceanic in the Illinois River watershed to the west (Villella et al. 2013a), California Madrean in California's Central Valley to the south (Carlberg et al. 2017) and Cascades-Northern Rockies Western Montane in Lava Beds National Monument to the east (Sheehy 2017). The macrolichens found on oaks within CSNM exhibit a mix of these floristic influences along with the more widespread temperate elements characteristic of the broader Pacific Northwest.

Regionally noteworthy species such as *Collema curtisporum*, *Dendriscoaulon intricatum* and

Hypotrachyna revoluta exhibit abundance and distribution patterns that point to the importance of dispersal corridors for rare lichen occurrences within the region. The proximity of the Siskiyou Crest and the Klamath River canyon provide dispersal corridors from the coastal ranges and the great basin. Species such as *Melanelixia californica*, *Physconia californica* and *Physconia fallax* that are at the northern edge of their range here represent rare occurrences for Oregon.

REPORTS OF NOTEWORTHY SPECIES

The following section gives details of species representing range extensions or rare species listed by Oregon Biodiversity Information Center. Voucher data are listed at the end of each entry; all cited specimens are deposited in the herbarium of Oregon State University (OSC).

Collema curtisporum Degel. – ONHP S1 – Critically Imperiled

This species is distinguished from the sympatric *Collema nigrescens* (Hudson) DC. by its shorter, 4-celled spores. It is thought of as being more common on the east side of the Cascade crest growing on cottonwood, being replaced on the west side by *C. nigrescens* commonly growing on oaks (McCune & Geiser 2009). This pattern seems to hold true for the broader Pacific Northwest (Exeter et al. 2016), but in the case of the CSNM *C. curtisporum* is the more common species. It was found in 26% (14) of the plots as opposed to *C. nigrescens* that occurred in only 2% (1) of plots. This species is from the Cascades-Northern Rockies Western Montane group and highlights the east side montane influence on this area. The local abundance within CSNM may be linked to the proximity of the Klamath River canyon that provides a dispersal corridor where cottonwood and white oak grow in close proximity.

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, oak-pine-fescue habitat, 04.iv.2016, on trunk of *Quercus garryana*, L. Kyan & S. Pierce 6-27 (OSC); 05.iv.2016, T. Carlberg 10-6 (OSC); Cascade-Siskiyou National Monument, in oak-conifer mosaic, 08.iv.2016, D. Stone 29-18 (OSC); Cascade-Siskiyou National Monument, in oak-juniper-fescue habitat type, 21.iv.2016, A. Hardman 212-2 (OSC).

Dendriscaulon intricatulum (Nyl.) Henssen (oak form)

The genus “*Dendriscaulon*” is actually the fruticose cyanomorphs of foliose species of *Ricasolia*, *Lobaria* or *Sticta*. There are two distinct forms of dendriscauloid lichens known in the Pacific Northwest, the oak-dwelling form and the conifer-dwelling form (McCune & Geiser 2009). It has been speculated that our oak-dwelling form may correspond to *R. amplissima* (Scop.) De Not. (Cornejo et al. 2017) based on one small composite specimen from oak in Northern California (Tonsberg & Goward 2001) but this has not been confirmed with molecular data. This lichen is somewhat common in the Klamath ranges where it occurs on a variety of different oak species. It occurred in four plots in CSNM.

Specimens examined. **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in oak-pine habitat, 04.iv.2016, T. Carlberg 13-20 (OSC); Cascade-Siskiyou National Monument, in oak-pine-fescue habitat, 21.iv.2016, A. Hardman 209-33 (OSC), 08.iv.2016, D. Stone 8B-38 (OSC); Cascade-Siskiyou National Monument, in oak-big leaf maple habitat, 21.iv.2016, A. Hardman 219-25 (OSC).

Hypotrachyna revoluta (Flörke) Hale – ONHP S3 – Vulnerable

This species is currently known from coastal California north to British Columbia where it is locally common. In Oregon it is rare, found on the coast and in the foothills of the Cascades (Exeter et al. 2016). It is tolerant of elevated nitrogen at some coastal sites (McCune 2003). The single record from CSNM is the first for Jackson County, and an eastern outlier population. *Hypotrachyna revoluta* is from the oceanic floristic group and occurs in the CSNM as a rare inland disjunct from the Coast Ranges of Coos and Curry Counties. The occurrence here may be facilitated by the land bridge provided by the Siskiyou crest. Although this species is not yet reported from Josephine County, we predict that targeted searches in the Klamath and Coast Ranges there could turn up new populations of this rare lichen.

Specimen examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in a closed canopy creekside oak woodland, 06.x.2016, on *Quercus garryana*, J. Villella JNL12-38 (OSC).

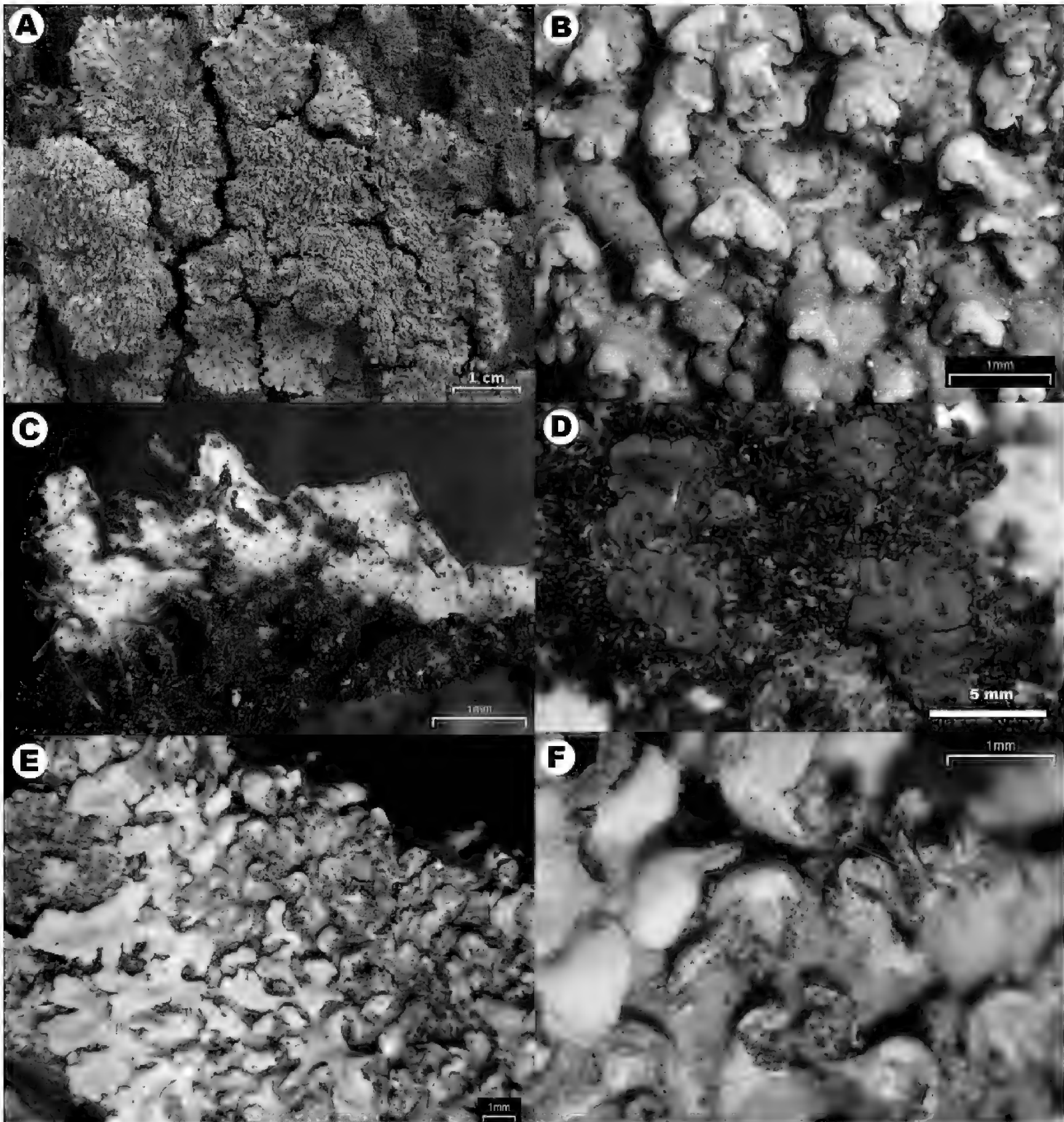


Figure 2. *Physconia californica* (A-C, all from Hollinger 4524), *Physconia fallax* (E-F, from Hollinger 1151) and *Placidium fingens* (D, from Stone 9268). A, habit of *P. californica*. B, detail of upper surface of *P. californica*. C, detail of light colored lower surface of *P. californica*. D, thallus of *P. fingens* growing over *Scytinium* on oak branch. E, habit of *P. fallax*. F, detail of hooded soralia in *P. fallax*. Photographs of *P. californica* and *P. fallax* by Jason Hollinger, photograph of *P. fingens* by Daphne Stone. Scale bars as indicated.

***Melanelixia californica* A. Crespo & Divakar**

A species that is mostly restricted to California, it is most frequent in the Sierra Nevada and the southern mountains (Sharnoff 2014). In CSNM this is a representative of the California Madrean floristic group. The specimens cited represent a new species occurrence for Oregon.

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in oak-juniper-fescue habitat, 19.iv.2016, *A. Hardman* 201-9 (OSC); Cascade-Siskiyou National Monument, in open oak savannah grassland, 06.x.2016, on *Quercus garyanna* *J. Villella* JNL 11-01 (OSC).

Physcia aipolia (Ehrh. ex Humb.) Fűrnr.

Recently North American material traditionally identified as *Physcia aipolia* has been critically examined, resulting in most of the material from the Pacific Northwest being recognized as *Physcia alnophila* (Vain.) Loht., Moberg, Myllys & Tehler, with *P. aipolia* s. str. being much rarer in the region (Brodo et al. 2013). *Physcia alnophila* is distinguished as having narrower lobes and apothecia near the margin as opposed to *P. aipolia* that has more central apothecia and wider lobes. *Physcia aipolia* contains several triterpines in addition to atranorin and zeorin that are lacking in *P. alnophila*. Spores on average are smaller in *P. alnophila* although there is a significant area of overlap in this character among individual specimens (Brodo et al. 2013). Of the oak dwelling specimens in CSNM most material is clearly assignable to *P. alnophila*, but four specimens conform morphologically to the species concept for *P. aipolia* in the strict sense.

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in juniper-oak-fescue habitat, 22.iv.2016, *A. Hardman* 225-25 (OSC); Cascade-Siskiyou National Monument, in oak-juniper chaparral, 04.ix.2016, *J. Vilella* JN02-8 (OSC); Cascade-Siskiyou National Monument, in open in oak savannah grassland, 06.x.2016, on *Quercus garryana* *J. Vilella* JNL11-8 (OSC); Cascade-Siskiyou National Monument, in pine-oak mosaic, 18.viii.2106, *J. Vilella* JNL2-09 (OSC).

Physcia subalbinea Nyl.

This species is apparently rare in Oregon, known to grow on rocks in the high desert environments of central Oregon. We found it in two plots as an oak epiphyte. Predominantly rock-dwelling or soil species occurred as oak epiphytes several times during this study (e.g. *Polychidium muscicola* (Sw.) Gray, *Scytinium lichenoides* (L.) Otálora, P. M. Jørg. & Wedin and *Xanthoparmelia* species and this is a pattern seen occasionally in southwestern Oregon.

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in mountain mahogany-oak-fescue habitat, 22.iv.2016, *A. Hardman* 226-33 (OSC); Cascade-Siskiyou National Monument, in oak-conifer woodland, 18.viii.2016, *J. Vilella* JNL1-20 (OSC).

Physciella chloantha (Ach.) Essl.

This very widespread species across North America has not been reported from the Pacific Northwest (McCune & Geiser 2009). The occurrence in CSNM is a new report for Oregon. Its presence in the Cascade-Siskiyou region may represent a relict population from an earlier time when climate conditions were different or a more recent arrival.

Specimen examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in oak-juniper-fescue habitat, 18.iv.2018, *A. Hardman* 217-19 (OSC).

Physconia californica Essl.

This species is distinguished from the very common species *Physconia americana* Essl. by the lighter underside (Figure 2C). *Physconia californica* has a California Madrean distribution, being common in central to southern California (Jovan 2003, Sharnoff 2014) but it is rare in northern California being known with certainty only from Tehama County (Carlberg et al. 2017). This species was found in two plots in CSNM where it is likely at the northern edge of its range in southwest Oregon.

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in oak-juniper chaparral, 19.iv.2016, *A. Hardman* 200-16 (OSC); Cascade-Siskiyou National Monument, in oak-pine-fescue habitat, 10.iv.2016, *D. Stone* 278-20 (OSC).

Physconia fallax Essl.

Similar to the very common *Physconia enteroxantha* (Nyl.) Poelt, this species is distinguished by the K-, KC- medulla and the tendency of the soralia to be borne in marginal circular pockets, reminiscent of *Xanthoria fallax* Essl. (Figure 2F). *Physconia fallax* has a California Madrean distribution with herbarium records from California and northern Baja California on oaks and rock (CNALH 2018). It was found in the CSNM in eleven plots. There are some nearby sites from northern California where it is common (Jovan

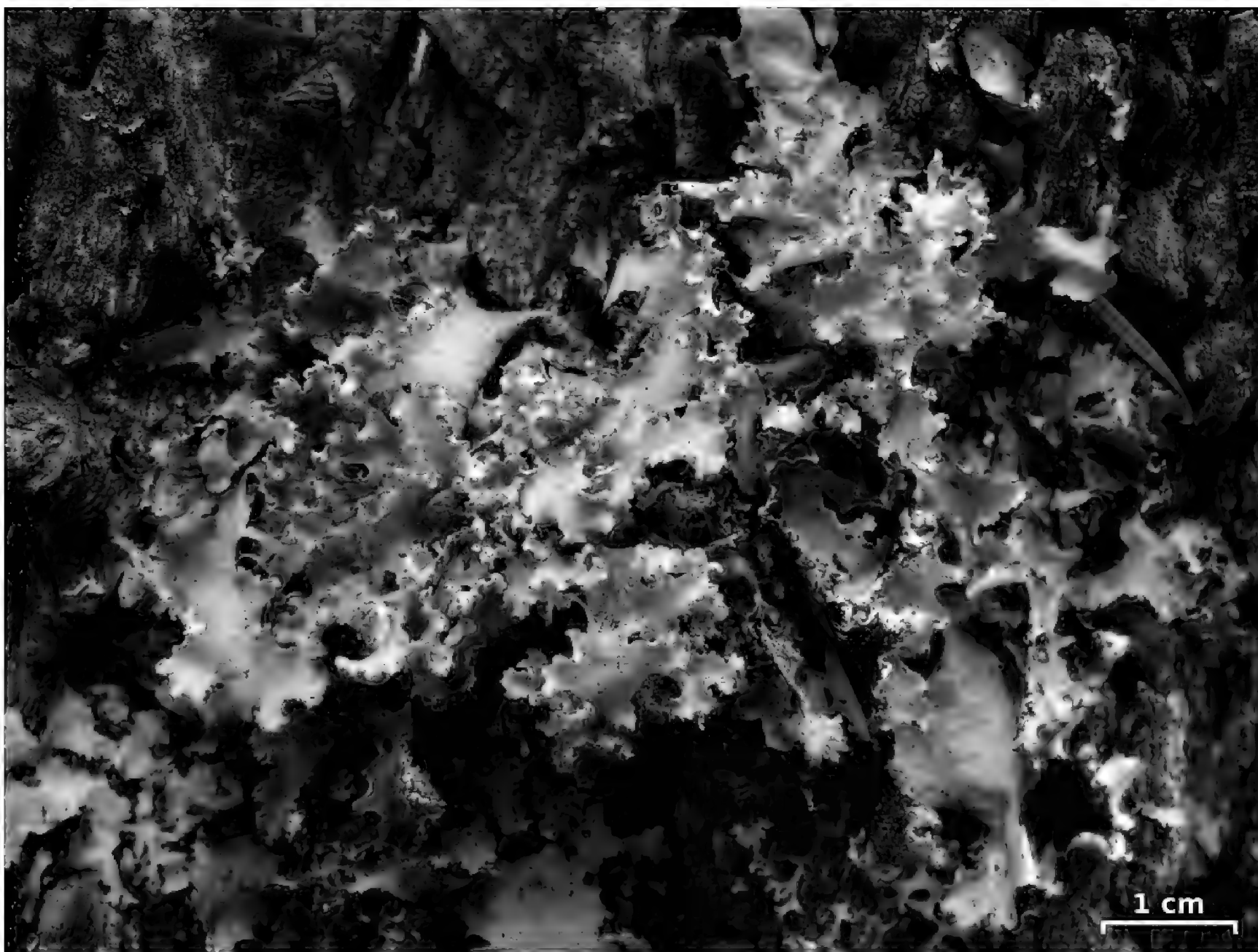


Figure 4. Habit of *Platismatia wheeleri* (Hollinger 9225; photograph by Jason Hollinger).

2003), but this is apparently a new record for Oregon. Jovan (2003) reported that maximum temperature was the best predictor for this species in north-central California. This suggests that increasing temperatures due to climate change could increase the ability of the species to persist in Oregon. This species may be underreported for the Pacific Northwest due to its cryptic nature, as underdeveloped material is difficult to distinguish in the field and it often grows in mixed patches with other *Physconia* species. It is known from one site in Washington on white oak (Esslinger 2000) and is common in southern California where it has an oceanic affinity (Sharnoff 2014).

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in oak-pine-fescue habitat, 04.iv.2016, *L. Kyan & S. Pierce 6-11* (OSC), 05.iv.2016, *T. Carlberg 10-23* (OSC), 19.iv.2016, *A. Hardman 201-16* (OSC); Cascade-Siskiyou National Monument, in oak-conifer mosaic, *J. Vilella JNL1-16* (OSC).

Placidium fingens (Breuss) Breuss

This inconspicuous peritheciate lichen is rarely found in western North America where it occurs in two distinct habitats: on soil among crust communities and as an oak epiphyte, always growing over *Scytinium* in the Pacific Northwest (Figure 2D). There are two collections on soil from the same site in Arizona (Breuss 2002), collections on bark from four sites California (Breuss & Bratt 2000), and one on oak bark in Washington (Vilella et al. 2013b). In Oregon it has been reported on soil among soil crusts (Root et al. 2011). This report is the first occurrence for Oregon as an oak epiphyte; it was found in two plots. Breuss (2002) stated that epiphytic and soil dwelling material from the American west “agree in all important respects”. However, Prieto et al. (2010) stated that North American material was distinct from Iberian material in having smaller ascospores and longer conidia, also pointing out that this species does not occur as an epiphyte on the Iberian Peninsula. More work is needed to determine if the North American soil or oak-dwelling material is distinct from *P. fingens* s. str.

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in oak-pine-fescue habitat, 04.iv.2016, *L. Kyan & S. Pierce* 6-39 (OSC), 10.iv.2016, *L. Kyan & S. Pierce* 273-28 (OSC).

Platismatia wheeleri Goward, Altermann & Björk

This species is similar to the widespread *Platismatia glauca* (L.) W.L. Culb. & C. F. Culb. but is distinguished by having marginal, sinuose soralia and no isidia (Figure 3). The distribution of this recently described species is not completely known. In the species description it is characterized as a western montane conifer-dwelling species found in the inland Pacific Northwest (Lumbsch et al. 2011). Allen et al. (2012) reported it from collections in southern California and Slovakia. It has been reported from white oak on the west side of the Cascade crest in the south Puget Sound prairie of Washington State (Villella et al. 2013a). We report it as common on oak in the CSNM, found in equal abundance as *P. glauca*, and in roughly half the plots.

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in oak-juniper chaparral, 19.iv.2016, *A. Hardman* 200-6 (OSC), Cascade-Siskiyou National Monument, in oak-juniper-fescue habitat, 06.iv.2016, *T. Carlberg* 243-26 (OSC). 07.iv.2016, *L. Kyan & S. Pierce* 262-5 (OSC), 08.iv.2016, *D. Stone* 8B-18 (OSC).

Rostania quadrifida (D. F. Stone & McCune) McCune – ONHP S2 – Imperiled

This oak-dwelling cyanolichen species might be confused with a young *Collema curtisporum* or *C. nigrescens* but it is smaller with a thickened margin, abundant apothecia, and cubical ascospores. Our results show that this species is common in the CSNM, occurring in 19% of the plots. Although locally common in the Klamath Mountain ranges this species seems to be rare in the broader Pacific Northwest. This pattern of species being locally abundant in the Klamath-Siskiyou region but otherwise regionally rare is shared by several macrolichens including *Collema curtisporum*, *Scytinium siskiyouensis* (D. F. Stone & Rutchy) Otálora, P. M. Jørg. & Wedin, *S. teretiusculum* (Wallr.) Otálora, P. M. Jørg. & Wedin and *Umbilicaria phaea* var. *coccinea* Llano.

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in oak-juniper-fescue habitat, 04.iv.2016, *L. Kyan & S. Pierce* 6-35(OSC), 08.iv.2016, *D. Stone* 27-26 (OSC); Cascade-Siskiyou National Monument, in oak-pine habitat, 04.iv.2016, *T. Carlberg* 13-27 (OSC); Cascade-Siskiyou National Monument, in oak savannah, 03.ix.2016, *J. Villella* 159-20 (OSC).

Xanthoria parietina (L.) Th. Fr.

Although there are several early reports of this species from Oregon (Lindblom 1997), most collections are from recent times in nitrogen-enriched settings (McCune 2003). In 2000 this species was collected from Lithia Park in Ashland (LAQD 2018) and is currently somewhat common on street trees in the urban areas of the Rogue Valley (J. Villella personal observation). It was found in three plots within CSNM and due to its pollution tolerant nature (McCune & Geiser 2009) it may become more common within the Monument if air quality conditions deteriorate.

Specimens examined. – **U.S.A. OREGON.** JACKSON CO: Cascade-Siskiyou National Monument, in oak-juniper chaparral, 19.iv.2016, *A. Hardman* 200-29 (OSC); Cascade-Siskiyou National Monument, in oak-juniper-fescue habitat, 19.iv.2016, *A. Hardman* 201-21 (OSC).

ACKNOWLEDGEMENTS

This study was funded through an assistance agreement between the Biodiversity Research Collective and the USFS/BLM Interagency Special Status/Sensitive Species Program. Thanks to Ted Esslinger for critical examination and determination of some of the Physciaceae specimens. We are grateful to Jason Hollinger for providing photographs and Joseph Vaile for providing geospatial data. Thanks to Dominic DiPaolo and Steve Sheehy for constructive discussions that improved the manuscript. Thanks to the field workers whose time and efforts are gratefully acknowledged: Amanda Hardman, Leela Hickman, Lisa Hintz, Dave Kofranek, Lin Kyan, Maysa Miller, Stephanie Pierce, Jay Scelza, and Stella Rose Scheel.

LITERATURE CITED

- Aguillaume, L., A. Avila, P. Pinho, P. Matos, E. Llop, and C. Branquinho. 2017. The critical levels of atmospheric ammonia in a Mediterranean holm-oak forest in north-eastern Spain. *Water, Air, and Soil Pollution* 228: 93.
- Allen, J.L., B.P. Hodkinson and C.R. Björk 2012. A major range expansion for *Platismatia wheeleri*. *North American Fungi* 7: 1–12.
- Breuss, O. 2002. *Placidium*. In: Nash III, T.H., B.D. Ryan, C. Gries and F. Bungartz. (eds.): *Lichen Flora of the Greater Sonoran Desert Region, Volume I*. Lichens Unlimited, Tempe, Arizona. Pp. 384–393.
- Breuss, O. and C.C. Bratt. 2000. Catapyrenioid lichens in California. *Bulletin of the California Lichen Society* 7: 36–43.
- Briles, C., C. Whitlock and P. Bartlein. 2005. Postglacial vegetation, fire, and climate history of the Siskiyou Mountains, Oregon, USA: *Quaternary Research* 64: 44–56.
- Brodo, I.M., S. Duran Sharnoff and S. Sharnoff. 2001. *Lichens of North America*. Yale University Press, New Haven & London. 795 pp.
- Brodo, I.M., C. Freebury and N. Alfonso. 2013. Notes on the lichens *Physcia aipolia* and *Physcia alnophila* in North America. *Evansia* 30: 110–119.
- Bury, R.B. and C. Pearl. 1999. Klamath-Siskiyou herpetofauna: Biogeographic patterns and conservation strategies. *Natural Areas Journal* 19: 341–350.
- Calabria, L., K.M. Petersen, S.T. Hamman and R.J. Smith. 2015. Prescribed fire decreases lichen and bryophyte biomass and alters functional group composition in Pacific Northwest prairies. *Northwest Science* 90: 470–483.
- Carlberg, T., J. Riddell, R. Fischer and A. Craig. 2017. Macrolichen inventory for Dye Creek Preserve, Los Molinos, California. *Bulletin of the California Lichen Society* 24: 22–35.
- Christy, J. and E. Alverson. 2011. Historical vegetation of the Willamette Valley, Oregon, circa 1850. *Northwest Science* 85: 93–107.
- Coleman, R.G. and A.R. Kruckeberg. 1999. Geology and plant life of the Klamath-Siskiyou mountain area. *Natural Areas Journal* 19: 320–340.
- Consortium of North American Lichen Herbaria (CNALH). 2018: <http://lichenportal.org/portal/index.php>. Last accessed on January 08, 2018.
- Copeland, S. and S. Harrison. 2014. Identifying plant traits associated with topographic contrasts in a rugged and diverse region (Klamath-Siskiyou Mts, OR, USA). *Ecography* 38: 569–577.
- Cornejo, C., C. Derr and K. Dillman. 2017. *Ricasolia amplissima* (Lobariaceae): one species, three genotypes and a new taxon from south-eastern Alaska. *The Lichenologist* 49: 579–596.
- DellaSala, D.A., S.B. Reid, T.J. Frest, J.R. Strittholt M.D. and Olson. 1999. A global perspective on the biodiversity of the Klamath-Siskiyou ecoregion. *Natural Areas Journal* 19: 300–319.
- DiPaolo, D. and P.E. Hosten. 2015. Vegetation change following the Forest Reserve Homestead Act of 1906 in the Applegate River watershed, Oregon. *Madroño* 62: 101–114.
- Dunwiddie, P.W. and J.D. Bakker. 2011. The future of restoration and management of prairie-oak ecosystems in the Pacific Northwest. *Northwest Science* 85: 83–92.
- Duren, O.C., P.S. Muir and P.E. Hosten. 2012. Vegetation change from the Euro-American settlement era to the present in relation to environment and disturbance in southwest Oregon. *Northwest Science* 86: 310–328.
- Engber, E.A., J.M. Varner III, L.A. Arguello and N.G. Sugihara. 2011. The effects of conifer encroachment and overstory structure on fuels and fire in an oak woodland landscape. *Fire Ecology* 7: 32–50.
- El Mokni, R., L. Boutabia-Telailia and M.H. El Aouni. 2018. Occurrence and bioindication of lichens within oak forests of Tunisia. In: Kallel, A., M. Ksibi, H. Ben Dhia and N. Khélifi (eds). *Recent Advances in Environmental Science from the Euro-Mediterranean and Surrounding Regions*. EMCEI 2017. Springer, Cham. Berlin, Germany. Pp: 1463–1465.
- Esslinger, T.L. 2000. A key for the lichen genus *Physconia* in California, with descriptions for three new species occurring within the state. *Bulletin of the California Lichen Society* 7(1): 1–6.
- Esslinger, T.L. 2018. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada, version 22. *Opuscula Philolichenum* 17: 6–268.
- Exeter, R.L., C. Glade and S. Loring. 2016. *Rare Lichens of Oregon*. Salem District, Bureau of Land Management, Salem Oregon. 195 pp.
- Fenn, M.E., H. Dieter Nagel, I. Koseva, J. Aherne, S.E. Jovan, L.H. Geiser, A. Schlutow, T. Scheuschner, A. Bytnerowicz, B.S. Gimeno, F. Yuan, S.A. Watmough, E.B. Allen, R.F. Johnson and T. Meixner. 2014. A comparison of empirical and modelled nitrogen critical loads for Mediterranean forests and shrublands in California. In: M.A. Sutton et al. (eds.), *Nitrogen Deposition, Critical Loads and Biodiversity*. Springer. Pp. 357–368.
- Forest Inventory and Analysis (FIA) National Program. 2011. FIA lichen communities protocol: https://www.fia.fs.fed.us/library/field-guides-methods-proc/docs/2012/field_guide_p3_5-1_sec21_10_2011.pdf.
- Güvenç, Ş. and Ş. Öztürk. 2017. Difference in epiphytic lichen communities on *Quercus cerris* from urban and rural

- areas in Bursa (Turkey). *Pakistan Journal of Botany* 49: 631–637.
- Insarov, G.E., E.E. Moutchnik and I.D. Insarova. 2010. Epiphytic lichens under air pollution stress in Moscow: Methodology for long-term monitoring. *Problems of Ecological Monitoring and Ecosystem Modelling* 23: 277–296.
- Jovan, S. 2003. Distributions and habitat models of epiphytic *Physconia* in north-central California. *Bulletin of the California Lichen Society* 10: 29–35.
- Jovan, S. 2008. *Lichen Bioindication of biodiversity, air quality, and climate: baseline results from monitoring in Washington, Oregon, and California*. USDA Forest Service, General Technical Report GTR-PNW 737. 115 pgs.
- Kappelle, M. and H.J.M. Sipman. 1992. Foliose and fruticose lichens of Talamanca montane *Quercus* forests, Costa Rica. *Brenesia* 37: 51–58.
- Lindblom, L. 1997. The genus *Xanthoria* (Fr.) Th. Fr. in North America. *Journal of the Hattori Botanical Laboratory* 83: 75–172.
- Lumbsch, H.T., T. Ahti, S. Altermann, G. Amo De Paz, A. Aptroot, U. Arup, A. Bárcenas Peña, P.A. Bawingan, M.N. Benatti, L. Betancourt, C.R. Björk, K. Boonpragob, M. Brand, F. Bungartz, M.E.S. Cáceres, M. Candan, J.L. Chaves, P. Clerc, R. Common, B.J. Coppins, A. Crespo, M. Dal-Forno, P.K. Divakar, M.V. Duya, J.A. Elix, A. Elvebakk, J.D. Fankhauser, E. Farkas, L. Itatí Ferraro, E. Fischer, D.J. Galloway, E. Gaya, M. Giralt, T. Goward, M. Grube, J. Hafellner, J.E. Hernández M., M.A. Herrera Campos, K. Kalb, I. Kärnefelt, G. Kantvilas, D. Killmann, P. Kirika, K. Knudsen, H. Komposch, S. Kondratyuk, J.D. Lawrey, A. Mangold, M.P. Marcelli, B. McCune, M.I. Messuti, A. Michlig, R. Miranda González, B. Moncada, A. Naikatini, M.P. Nelsen, D.O. Øvstedal, Z. Palice, K. Papong, S. Parnmen, S. Pérez-Ortega, C. Printzen, V.J. Rico, E. Rivas Plata, J. Robayo, D. Rosabal, U. Ruprecht, N. Salazar, L. Sancho, L. Santos De Jesus, T. Santos Vieira, M. Schultz, M.R.D. Seaward, E. Sérusiaux, I. Schmitt, H.J.M. Sipman, M. Sohrabi, U. Söchting, M.Z. Søgaaard, L.B. Sparrius, A. Spielmann, T. Spribille, J. Sutjaritturakan, A. Thammathaworn, A. Thell, G. Thor, H. Thüs, E. Timdal, C. Truong, R. Türk, L. Umaña Tenorio, D.K. Upreti, P. van den Boom, M. Vivas Rebuella, M. Wedin, S. Will-Wolf, V. Wirth, N. Wirtz, R. Yahr, K. Yeshitela, F. Ziemmeck, T. Wheeler and R. Lücking 2011. One hundred new species of lichenized fungi: a signature of undiscovered global diversity. *Phytotaxa* 18: 1–127.
- Marmor, L., T. Randlane, I. Juriado and A. Saag. 2017. Host tree preferences of red-listed epiphytic lichens in Estonia. *Baltic Forestry* 23: 364–373.
- McCune, B. 2003. An unusual ammonia-affected lichen community on the Oregon coast. *Evansia* 20: 132–137.
- McCune, B. and L. Geiser. 2009. *Macrolichens of the Pacific Northwest. Second Edition*. Oregon State University Press, Corvallis. 464 pp.
- McCune, B. and R. Rosentreter. 2014. New lichen records from Oregon to Alaska in North America. *Evansia* 31: 1–7.
- Noss, R.F. and R.L. Peters. 1995. Endangered ecosystems. A status report on America's vanishing habitat and wildlife. *Defenders of Wildlife*, Washington, DC. 151 pgs.
- Oran, S. and S. Öztürk 2012. Epiphytic lichen diversity on *Quercus cerris* and *Q. frainetto* in the Marmara region (Turkey) [Marmara bölgesindeki *Quercus cerris* ve *Q. frainetto* üzerindeki epifitik liken çeşitliliği]. *Turkish Journal of Botany* 36: 175–190.
- Parks, C.G., S.R. Radosevich, B.A. Endress, B.J. Naylor, D. Anzinger, L.J. Rew, B.D. Maxwell and K.A. Dwire. 2005. Natural and land-use history of the Northwest mountain ecoregions (USA) in relation to patterns of plant invasions. *Perspectives in Plant Ecology, Evolution and Systematics* 7: 137–158.
- Pérez-Pérez, R.E., G. Castillo-Campos and M.E.D.S. Cáceres. 2015. Diversity of corticolous lichens in cloud forest remnants in la Cortadura, Coatepec, Veracruz, México in relation to phorophytes and habitat fragmentation. *Cryptogamie, Mycologie* 36(1): 79–92.
- Prieto, M., G. Aragón and I. Martínez 2010. The genus *Catapyrenium* s. lat. (Verrucariaceae) in the Iberian Peninsula and the Balearic Islands. *The Lichenologist* 42: 637–684.
- Root, H. T., J. E. D. Miller and B. McCune. 2011: Biotic soil crust lichen diversity and conservation in shrub-steppe habitats of Oregon and Washington. *The Bryologist* 114(4): 796–812.
- Sharnoff, S. 2014. *A Field Guide to California Lichens*. Yale University Press. New Haven, Connecticut. 505 pp.
- Sheehy, S. 2017. Grant enables increase to lichen list of Lava Beds National Monument in Siskiyou and Modoc Counties, California. *Bulletin of the California Lichen Society* 24: 6–15.
- Sugihara, N.G. and L.J. Reed. 1987. *Vegetation Ecology of the Bald Hills Oak Woodlands of Redwood National Park*. Redwood National Park Research and Development Technical Report 21. Redwood National Park, Arcata, CA. 78 pp.
- Stebbins, G.L. and J. Major. 1965. Endemism and speciation in the California flora. *Ecological Monographs* 35: 1–35.
- Tønsberg, T. and T. Goward. 2001. *Sticta oroborealis* sp. nov. and other Pacific North American lichens forming dendrocauloid cyanotypes. *The Bryologist* 104: 12–23.
- Upreti, D.K. and S. Chatterjee. 2000. Distribution of lichens on *Quercus* and *Pinus* trees in Almora district, Kumaon Himalayas, India. *Geophytology* 28: 41–49.
- United States Forest Service National Lichen Air Quality Database: 2018 <http://gis.nacse.org/lichenair/> last accessed January 11, 2018.

- van Herk, C.M. 2001. Bark pH and susceptibility to toxic air pollutants as independent causes of changes in epiphytic lichen composition in space and time. *The Lichenologist* 33: 419–441.
- Villella, J., S. Benson, T. Carlberg, J.E.D. Miller, and E.B. Peterson. 2010. The lichens of the Horseshoe Ranch Wildlife Area. *Bulletin of the California Lichen Society* 17: 9–12.
- Villella, J., S. Loring and B. McCune. 2013a. The lichens of southwest Oregon’s Illinois River watershed. *Bulletin of the California Lichen Society* 20: 33–48.
- Villella, J., D. Stone, L.M. Calabria and G.D. Eide. 2013b. Macrolichen communities of *Quercus garryana* in the Puget Trough and Columbia River Gorge areas of Washington State. *North American Fungi* 8: 1–22.
- Villella, J. and S. Sheehy. 2016. Additional site of *Umbilicaria hirsuta* from southwestern Oregon and the associated lichenicolous fungus *Arthonia circinata* new to North America. *Bulletin of the California Lichen Society* 22: 19–21.
- Whittaker, R.H. 1961. Vegetation history of the Pacific coast states and the ‘central’ significance of the Klamath region. *Madroño* 16: 5–23.
- Wright, D. 1998. Collections from the 1998 Northwest Lichen Guild - CALS field trip to the Pilot Rock area, Siskiyou Mountains, Jackson County, Oregon, May 23, 1998. *Bulletin of the California Lichen Society* 5: 28–37.

Appendix I – Macrolichens of *Quercus garryana* in the Cascade-Siskiyou National Monument

Nomenclature follows Esslinger (2018). Bolded species are listed with ORBIC. Species recommended for conservation ranking in Oregon are denoted with an asterisk (*). Floristic group is denoted as: (PT) pan-temperate, (NW) Pacific Northwest temperate, (WT) west temperate, (WM), western montane, (OC) oceanic, (CM) California madrean.

- | | |
|--|--|
| <i>Ahtiana sphaerosporella</i> (Müll. Arg.) Howard - WM | <i>Kaernefeltia merrillii</i> (Du Rietz) A. Thell & Goward – OC |
| <i>Alectoria sarmentosa</i> (Ach.) Ach. – NW | <i>Leptogium pseudofurfuraceum</i> P. M. Jørg. & Wallace – WT |
| <i>Bryoria capillaris</i> (Ach.) Brodo & D. Hawksw. – NW | <i>Leptogium saturninum</i> (Dickson) Nyl. – PT |
| <i>Bryoria fremontii</i> (Tuck.) Brodo & D. Hawksw. – NW | <i>Letharia columbiana</i> (Nutt.) J. W. Thomson – NW |
| <i>Bryoria fuscescens</i> (Gyeln.) Brodo & D. Hawksw. – PT | <i>Letharia vulpina</i> (L.) Hue – WT |
| <i>Bryoria pseudofuscescens</i> (Gyeln.) Brodo & D. Hawksw. – NW | <i>Lobaria anomala</i> (Brodo & Ahti) T. Sprib. & McCune – OC |
| <i>Bryoria simplicior</i> (Vain.) Brodo & D. Hawksw. – WM | <i>Lobaria anthraspis</i> (Ach.) T. Sprib. & McCune – OC |
| <i>Candelaria pacifica</i> M. Westb. & Arup – WT | <i>Lobaria hallii</i> (Tuck.) Zahlbr. – OC |
| <i>Cetraria chlorophylla</i> (Willd.) Hale – NW | <i>Lobaria pulmonaria</i> (L.) Hoffm. – OC |
| <i>Cetraria orbata</i> (Nyl.) Fink – NW | <i>Melanelixia californica</i> A. Crespo & Divakar – CM |
| <i>Cetraria platyphylla</i> Tuck. – NW | <i>Melanelixia glabratula</i> (Lamy) Sandler & Arup – OC |
| <i>Cladonia chlorophaea</i> (Flörke ex Sommerf.) Sprengel – PT | <i>Melanelixia subargentifera</i> (Nyl.) O. Blanco et al. – PT |
| <i>Cladonia fimbriata</i> (L.) Fr. – PT | <i>Melanohalea elegantula</i> (Zahlbr.) O. Blanco et al. – WT |
| <i>Collema curtisporum</i> Degel. – WM | <i>Melanohalea exasperatula</i> (Nyl.) O. Blanco et al. – WM |
| <i>Collema nigrescens</i> (Hudson) DC. – OC | <i>Melanohalea multispora</i> (A. Schneider) O. Blanco et al. – NW |
| <i>Dendroica intricatulum</i> (Nyl.) Henssen – OC | <i>Melanohalea subelegantula</i> (Essl.) O. Blanco et al. – OC |
| <i>Evernia prunastri</i> (L.) Ach. – NW | <i>Melanohalea subolivacea</i> (Nyl.) O. Blanco et al. – NW |
| <i>Hypogymnia enteromorpha</i> (Ach.) Nyl. – OC | <i>Nephroma helveticum</i> Ach. – OC |
| <i>Hypogymnia imshaugii</i> Krog – NW | <i>Nephroma resupinatum</i> (L.) Ach. – NW |
| <i>Hypogymnia physodes</i> (L.) Nyl. – WM | |
| <i>Hypogymnia tubulosa</i> (Schaerer) Hav. – NW | |
| <i>Hypogymnia wilfiana</i> Goward, T. Sprib. & Ahti – WM | |
| <i>Hypotrachyna revoluta</i> (Flörke) Hale – OC | |

Nodobryoria abbreviata (Müll. Arg.) Common & Brodo – NW
Nodobryoria oregana (Tuck.) Common & Brodo – NW
Normandina pulchella (Borrer) Nyl. – OC
Parmelia barrenoae Divakar, M. C. Molina & A. Crespo – WT
Parmelia hygrophila Goward & Ahti – NW
Parmelia sulcata Taylor – PT
Parmeliopsis hyperopta (Ach.) Arnold – PT
Peltigera canina (L.) Willd. – WM
Peltigera collina (Ach.) Schrader – NW
Peltigera membranacea (Ach.) Nyl. – OC
Peltigera ponojensis Gyelnik – WM
Peltigera praetextata (Flörke ex Sommerf.) Zopf – WM
Phaeophyscia orbicularis (Necker) Moberg – WT
Physcia adscendens (Fr.) H. Olivier – PT
Physcia aipolia (Ehrh. ex Humb.) Fűrnr. – PT
Physcia alnophila (Vainio) Loht., Moberg, Myllys & Tehler – PT
Physcia biziana (A. Massal.) Zahlbr. – WT
Physcia stellaris (L.) Nyl. – PT
Physcia subalbinea Nyl. – WT
Physcia tenella (Scop.) DC. – OC
Physciella chloantha (Ach.) Essl. – PT
Physconia americana Essl. – OC
Physconia californica Essl. * – CM
Physconia enteroxantha (Nyl.) Poelt – WT
Physconia fallax Essl. * – CM
Physconia isidiigera (Zahlbr.) Essl. – WM
Physconia perisidiosa (Erichsen) Moberg – WT
Placidium fingens (Breuss) Breuss * – CM
Platismatia glauca (L.) W. L. Culb. & C. F. Culb. – OC
Platismatia wheeleri Goward, Altermann &

Björk – WM
Polycauliona candelaria (L.) Frödén, Arup, & Söchting – OC
Polycauliona polycarpa (Hoffm.) Frödén, Arup, & Söchting – OC
Polychidium muscicola (Sw.) Gray – WM
Ramalina farinacea (L.) Ach. – OC
***Rostania quadrifida* (D. F. Stone & McCune) McCune – OC**
Scytinium cellulosum (P. M. Jørg. & Tønsberg) Otálora, Jørg. & Wedin – OC
Scytinium lichenoides (L.) Otálora, P. M. Jørg. & Wedin – WM
Scytinium tacomae (P. M. Jørg. & Tønsberg) McCune – NW
Scytinium teretiusculum (Wallr.) Otálora, P. M. Jørg. & Wedin – PT
Usnea cavernosa Tuck. – PT
Usnea cornuta Körber – PT
Usnea diplotypus Vainio – PT
Usnea glabrata (Ach.) Vainio – WT
Usnea hirta (L.) Weber ex F. H. Wigg. – PT
Usnea pacificana P. Halonen – OC
Usnea perplexans Striton – WT
Usnea scabrata Nyl. – WT
Usnea substerilis Motyka – WT
Usnea wasmuthii Räsänen – OC
Waynea californica Moberg – CM
Xanthomendoza hasseana (Räsänen) Söch., Kärnefelt & S.Y.Kondr. – PT
Xanthomendoza oregana (Gyelnik) Söch., Kärnefelt & S.Y.Kondr. – WT
Xanthoparmelia sp. – WM
Xanthoria parietina (L.) Th. Fr. – PT

New combinations and notes on *Buellia* and *Rostania*

GARY B. PERLMUTTER¹ AND EIMY RIVAS PLATA²

ABSTRACT. – *Buellia pleiotera* is here noted as the correct name for of *B.* "pleiotropa". New combinations are proposed for *Hafellia fosteri* and *Collema occultum* var. *populinum* to further complete the taxonomic transfers to *Buellia* and *Rostania*, respectively.

KEYWORDS. – Nomenclature, Caliciaceae, Collemaaceae.

INTRODUCTION

During the course of updating the taxonomy and distributions of lichens in North America for the USDA PLANTS database (<http://plants.usda.gov/>) in 2015–2016, we discovered some taxa that appeared to have been orphaned by taxonomic changes at higher levels. Here we report our investigations into these taxa and propose changes for each, including two new combinations.

I. *HAFELLIA BAHIANA* VAR. "PLEIOTROPA" SHOULD BE CORRECTED TO "PLEIOTERA"

Buellia pleiotera Malme, in Arkiv för Botanik 21A (14): 7. 1927. ≡ *Hafellia pleiotera* (Malme) Marbach, Bibliotheca Lichenologica 74: 274. 2000. ≡ *Hafellia bahiana* var. *pleiotera* [as "pleiotropa"] (Malme) Sheard, The Bryologist 95: 82. 1992. **TYPE: BRAZIL, MATO GROSSO:** Cuyaba, 1893, *Malme 2027B* (S[n.v.], holotype).

We first encountered the name *Hafellia bahiana* var. *pleiotropa* (Malme) Sheard in the USDA PLANTS database. The database lists five taxa in the genus *Hafellia* Kalb, H. Mayrhofer & Scheid., three of which we were able to readily update based on the then-current version of North American lichen checklist (Esslinger 2015). Esslinger (2015, 2018) listed *H. bahiana* var. *pleiotropa* as a synonym of *Buellia bahiana* var. *pleiotropa* Malme; however, the latter name is neither listed in nomenclatural databases such as Index Fungorum nor references such as the *Catalogus Lichenum Universalis* (Zahlbruckner 1931: 339, 389). While Index Fungorum lists the basionym of *H. bahiana* var. *pleiotropa* as "*B. pleiotropa* Malme", the database record for the latter does not include a bibliographic citation. The MycoBank database lists the same name as "*Buellia pleiotropa* (?) Malme"; however, that record also lacks a bibliographic citation.

In consultation with Frank Bungartz and John Sheard, we learned that Sheard (1992) erroneously introduced the epithet "*pleiotropa*" in his treatment of North American *Hafellia*. In that work, Sheard cited "Ark. Bot. 21 A: 18, 1927" as the place of publication for *B. pleiotropa* when he made the combination *H. bahiana* var. *pleiotropa*. Examination of the cited work by Malme (1927: 18) revealed that the epithet was published as "*pleiotera*" rather than "*pleiotropa*" and the latter spelling introduced by Sheard (1992) was almost certainly a *lapsus calami* as had already been noted by Marbach (2000: 275). We agree with Marbach (2000) that the use of "*pleiotropa*" by Sheard (1992) should be treated as a correctable error, and that "*H. bahiana* var. *pleiotropa*" and "*B. bahiana* var. *pleiotropa*" should be indexed as such on the North American checklist.

¹GARY B. PERLMUTTER – University of North Carolina Herbarium, CB #3280 Coker Hall, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3280, U.S.A. – e-mail: gary.perlmutter@gmail.com

²EIMY RIVAS PLATA – University of North Carolina Herbarium, CB #3280 Coker Hall, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3280, U.S.A. – e-mail: eimy.rivasplata@gmail.com

II. TRANSFER OF *HAFELLIA FOSTERI* TO *BUELLIA*

***Buellia fosteri* (Imshaug & Sheard) Perlmutter & Rivas Plata, comb. nov.**

Mycobank #827050.

≡ *Hafellia fosteri* Imshaug & Sheard, Bryologist 95: 85. 1992. **TYPE: U.S.A., WASHINGTON:** Pacific Beach, old roots and logs on beach, 5.III.1911, *Foster s.n.* (FH[n.v.], holotype).

Hafellia was rendered synonymous with *Buellia* De Not. when a proposal to replace the conserved type, *B. disciformis* (Fr.) Mudd, with *B. aethalea* (Ach.) Th. Fr., was not recommended by the Nomenclature Committee of Fungi (NCF), which is part of the International Association for Plant Taxonomy (Gams 2004, Moberg 1999). That proposal had attempted to retain *B. disciformis* as the type for *Hafellia*, as *H. disciformis* (Fr.) Marbach & H. Mayrhofer, so that the name could continue to be applied to a distinctive group of crustose lichens with thickened ascospore walls that had historically been treated in *Buellia*. The NCF declined to endorse the proposal to change the type of *Buellia* and deferred action pending more comprehensive understanding of the taxonomy and phylogeny of the genus. As a result, all taxa treated in *Hafellia* should be transferred to *Buellia* until a change in the typification is formally approved.

Hafellia fosteri is listed in USDA PLANTS as “accepted”. In Esslinger (2018) it is listed under *Buellia* as “[*Hafellia fosteri* Imshaug & Sheard]” with the brackets indicating placement in *Buellia* despite the absence of a published combination. The name for this species was originally introduced as “*Buellia fosteri*” by Henry Imshaug in his Ph.D dissertation (Imshaug 1951). However, it was not subsequently, validly published. Sheard (1992) described this taxon as a new species in his treatment of North American *Hafellia*, crediting Imshaug as a coauthor but validating the name in *Hafellia* instead of *Buellia* (Sheard 1992). Now that *Hafellia* must be treated as a synonym of *Buellia*, we provide a validly published combination in *Buellia*.

III. TRANSFER OF *COLLEMA OCCULTATA* VAR. *POPULINA* TO *ROSTANIA*

***Rostania occultata* var. *populina* (Th. Fr.) Perlmutter & Rivas Plata, comb. nov.**

Mycobank #827051.

≡ *Collema verruciforme* f. *populinum* Th. Fr., Nova Acta Regiae Societatis Scientiarum Upsaliensis 3: 379. 1861. ≡ *Collema occultatum* Bagl. var. *populinum* (Th. Fr.) Degel., Symbolae Botanicae Upsalienses 13(2): 245. 1954. **TYPE: NORWAY, NORDLAND:** Saltdal, Saltdalen, no date, *Sommerfelt s.n.* (UPS[n.v.], holotype).

The *Collema occultatum*-group was transferred to the resurrected genus *Rostania* Trevis. by Otálora et al. (2014). However, the variety *populinum* was not formally included in the transfer. *Collema occultatum* var. *populinum* is known from Alabama to California in the United States (Degelius 1974); however, it is not currently listed in the North American lichen checklist (Esslinger 2018). We propose the new combination to complete the transfer of available names in the *C. occultatum*-group to *Rostania*. We also recommend it be added to the North American lichen checklist.

ACKNOWLEDGEMENTS

We thank taxonomic experts Frank Bungartz, Monica Otálora, John Sheard and Mats Wedin for their insight. This study was conducted as part of a contract between UNC-Chapel Hill and USDA NRCS to update the taxonomy, nomenclature and distribution of lichens occurring in the contiguous United States for the USDA PLANTS database. Therefore, we thank Doug Goldman and Gerry Moore for reaching out to us for the opportunity to carry out this project, as well as to Alan Weakley for acting as its Principal Investigator. Finally, we thank James Lendemer and an anonymous reviewer for comments and editing that improved the manuscript considerably.

LITERATURE CITED

- Degelius, G. 1954. The lichen genus *Collema* in Europe: Morphology, taxonomy, ecology. *Symbolae Botanicae Upsaliensis* 13: 1–499.
- Degelius, G. 1974. The lichen genus *Collema* with special reference to the extra-European species. *Symbolae Botanicae Upsaliensis*. 20(2): 1–215.
- Esslinger, T.L. 2015. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. North Dakota State University: <http://www.ndsu.edu/pubweb/~esslinger/chcklst/chcklst7.htm> (First Posted 1 December 1997, Most Recent Version (#20) 19 April 2015), Fargo, North Dakota.
- Esslinger, T.L. 2018. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada, version 22. *Opuscula Philolichenum* 17: 6–268.
- Gams, W. 2004. Report of the Committee for Fungi: 11. *Taxon* 53: 1067–1069.
- Imshaug, H.A. 1951. The lichen-forming species of the genus *Buellia* occurring in the United States and Canada. Ph.D. dissertation, University of Michigan, Ann Arbor. 223 pp.
- Malme, G.O.A. 1927. *Buelliae itineris Regnelliani primi*. *Arkiv för Botanik* 21A(14): 1–42.
- Marbach, B. 2000. Corticole und lignicole Arten der Flechtengattung *Buellia* sensu lato in den Subtropen und Tropen. *Bibliotheca Lichenologica* 74: 1–384.
- Moberg, R., A. Nordin and C. Scheidegger. 1999. (1384) Proposal to change the listed type of the name *Buellia*, nom. cons. (Physciaceae, lichenised Ascomycota). *Taxon* 48: 143.
- Otálora, M.A.G., P.M. Jørgensen and M. Wedin. 2014. A revised generic classification of the jelly lichens, Collemataceae. *Fungal Diversity* 64: 275–293.
- Sheard, J.W. 1992. The lichenized ascomycete genus *Hafellia* in North America. *The Bryologist* 95: 79–87.
- Zahlbruckner, A. 1931. *Catalogus Lichenum Universalis* 7: i–ii, 1–784. Borntraeger, Leipzig.

Discovery of *Coenogonium isidiatum* (Coenogoniaceae, Ostropomycetidae) disjunct in northeastern Asia

LIUDMILA KONOREVA¹, SERGEY CHESNOKOV², IRINA STEPANCHIKOVA³, IVAN FROLOV⁴, LUDMILA GAGARINA⁵ AND SVETLANA TCHABANENKO⁶

ABSTRACT. – *Coenogonium isidiatum* is reported new to Russia from the Far East, constituting a considerable northern range extension for the species. Morphology, ecology and distribution of the species are discussed. Molecular data (mrSSU and nrITS DNA sequences) were obtained from the material and phylogenetic analyses recovered these as a strongly supported and monophyletic with respect to other sequenced *Coenogonium* species.

KEYWORDS. – Biogeography, distribution, isidia, Kurile Islands, Kamchatka, Sakhalin, sterile crustose lichens.

INTRODUCTION

Coenogonium Ehrenb. is characterized by filamentous or crustose thalli, biatorine (sometimes zeorine) apothecia with yellow to orange or brownish discs, paraplectenchymatous exciples, partially amyloid hymenia, unitunicate asci with entirely thin walls, and two-celled (rarely simple), colorless ascospores, and trentepohlioid photobionts (Ferraro & Michlig 2013, Lücking 2008, Rivas Plata et al. 2006). Currently the genus comprises about 130 species of mainly tropical to subtropical lichens (Gagarina 2015). Originally the genus *Coenogonium* consisted of species with filamentous thalli only and those with crustose thalli were included into the separate genus *Dimerella* Trevis (Vězda & Poelt 1975). However, studies on morphology, anatomy and phylogeny suggested that *Dimerella* should be merged with *Coenogonium* (Kauff & Lutzoni 2002, Lücking & Kalb 2000, Lücking 2008, Rivas Plata et al. 2006).

¹LIUDMILA KONOREVA – a) Botanical Garden-Institute FEB RAS, Makovskogo str., 142, Vladivostok, 690024, Russia; b) Laboratory of Flora and Vegetation, The Polar-Alpine Botanical Garden-Institute of the Kola Science Centre of Russian Academy of Sciences, Botanical Garden str., Kirovsk, 184256 Murmansk Region; c) Laboratory of Lichenology and Bryology, Komarov Botanical Institute of Russian Academy of Sciences, Professor Popov str. 2, 197376 St. Petersburg, Russia. – e-mail: ajdarzapov@yandex.ru

²SERGEY CHESNOKOV – a) Laboratory of Lichenology and Bryology, Komarov Botanical Institute of Russian Academy of Sciences, Professor Popov str. 2, 197376 St. Petersburg, Russia; b) Sakhalin Branch of Botanical Garden-Institute of the Far Eastern Branch of Russian Academy of Sciences, Gorkogo str. 25, mailbox 34, 693023 Yuzhno-Sakhalinsk, Russia. – e-mail: lukinbrat@mail.ru

³IRINA STEPANCHIKOVA – a) St. Petersburg State University, Universitetskaya emb. 7–9, 199034 St. Petersburg, Russia; b) Laboratory of Lichenology and Bryology, Komarov Botanical Institute of Russian Academy of Sciences, Professor Popov str. 2, 197376 St. Petersburg, Russia. – e-mail: stepa_ir@mail.ru

⁴IVAN FROLOV – Russian Academy of Sciences, Ural Branch: Institute Botanic Garden, Vos'mogo Marta 202a str., 620144 Yekaterinburg, Russia. – e-mail: ivfrolov@gmail.com

⁵LUDMILA GAGARINA – Laboratory of Lichenology and Bryology, Komarov Botanical Institute of Russian Academy of Sciences, Professor Popov str. 2, 197376 St. Petersburg, Russia. – e-mail: gagarinalv@binran.ru

⁶SVETLANA TCHABANENKO – Sakhalin Branch of Botanical Garden-Institute of the Far Eastern Branch of Russian Academy of Sciences, Gorkogo str. 25, mailbox 34, 693023 Yuzhno-Sakhalinsk, Russia. – e-mail: tuna54@mail.ru

Altogether 14 species of *Coenogonium* are known from extratropical Eurasia (Gagarina 2015), and two of those have been previously reported from Russia: *C. luteum* (Dicks.) Kalb & Lücking and *C. pineti* (Schrader ex Ach.) Lücking & Lumbsch (Gagarina 2017). Both species are widely distributed in boreal and temperate forests in Russia (Gagarina 2015, 2017), with the other extratropical Eurasian species having been reported from Southeastern Asia (South Korea (Kondratyuk et al. 2016), Japan and China (Obermayer 2004). Here we report the discovery of *C. isidiatum* (G. Thor & Vězda) Lücking, Aptroot & Sipman in the Russian Far East, a remarkable range extension of the species into northeastern Asia.

MATERIALS AND METHODS

Field and herbarium study. – Specimens were collected by Liudmila Konoreva and Sergey Chesnokov on Sakhalin, Shikotan and Iturup Islands in the Sakhalin Region of Russia in 2017, and by Irina Stepanchikova on the Kamchatka Peninsula in the Kamchatka Territory of Russia in 2016. The specimens were deposited in the lichen herbaria of the Komarov Botanical Institute of the Russian Academy of Sciences (LE) and the University of Helsinki (H). The material was examined by the authors in the Laboratory of Lichenology and Bryology of Komarov Botanical Institute, using standard microscopic techniques (Smith et al. 2009). High Performance Thin Layer Chromatography (HPTLC) was performed according to standard procedures (Culberson & Ammann 1979, Kranner et al. 2002), using solvent system A. Photographs of the species were taken with a Stemi-2000 CS microscope with an attached AxioCam MRc5 camera. The distribution map was prepared using MapInfo GIS software. Geographical coordinates are given in spatial reference system WGS 1984. Ludmila Gagarina revised specimens in the herbaria of the Museum of Evolution, Uppsala University (UPS) and the Swedish Museum of Natural History, Stockholm (S), including the type specimen of *Coenogonium isidiatum*.

Molecular data generation and analyses. – Extraction of DNA and PCR amplification were performed following Cubero et al. (1999). We used the primer pairs mrSSU1 and mrSSU3R (Zoller et al. 1999), and ITS1F (Gardes & Bruns 1993) and ITS4 (White et al. 1990) for the production of mrSSU and nrITS rDNA sequences. Amplicons were sequenced at Eurogen (Moscow)®. Chromatograms were edited in FinchTV 1.4.0 (Geospiza, Inc.; Seattle, WA, USA), then resulting sequences were assembled in BioEdit 7.2.5 (Hall 1999) and aligned online by MAFFT version 7 (Kato & Standley 2013) with the L-INS-i method (Kato et al. 2005). The alignment was manually checked and adjusted in BioEdit 7.2.5. Newly generated sequences were uploaded into the NCBI (GenBank); accession numbers are provided (see Table 1 in the appendix). The alignment was deposited in TreeBASE (Submission ID 23107). Our sequences of mrSSU were aligned together with all *Coenogonium* mrSSU sequences available in GenBank (see Table 1 in the appendix). Species of the order Ostropales were selected as an outgroup (see e.g. the phylogenetic reconstruction by Resl et al. 2015). ITS sequences were not used in the phylogenetic reconstructions. Maximum likelihood reconstruction was carried out in RAxML (Stamatakis et al. 2005) through the RAxMLGUI interface (Silvestro & Michalak 2012); the GTR+G model was chosen with jModelTest 0.1.1 (Guindon & Gascuel 2003; Posada 2008). Bootstrap support values were calculated on 500 bootstrap replicates using rapid bootstrapping (“ML + rapid bootstrap” function in RAxMLGUI). The whole original alignment (including ambiguously aligned regions) was used in the analysis; gaps were treated as missing data. Pairwise genetic distances between ITS sequences were calculated in PAUP under the JC model of evolution. The mean and standard deviation of the pairwise distances were calculated in Excel.

RESULTS AND DISCUSSION

We generated four new mrSSU sequences from samples identified as *Coenogonium isidiatum* collected on the Kamchatka Peninsula, Sakhalin Island and Kurile Islands. The four sequences were recovered in a strongly supported clade (ML BP: 100) within a strongly supported and monophyletic *Coenogonium* (ML BP: 100) (Figure 1). All our mrSSU sequences were 100% identical to each other. We also generated five new nrITS sequences from the same material (see Table 1 in the appendix), and these included some variable positions. The calculated mean pairwise distance and standard deviation for our nrITS sequences (0.0054 ± 0.004) corresponds well to the reported intraspecific variability of ITS sequences in the genus *Phlyctis*, which is also placed in the order Ostropales (Muscavitch et al. 2017). Hence, molecular data support a morphologically based hypothesis that our specimens belong to one species of the genus *Coenogonium*. Unfortunately, no previously published sequences of *C. isidiatum*

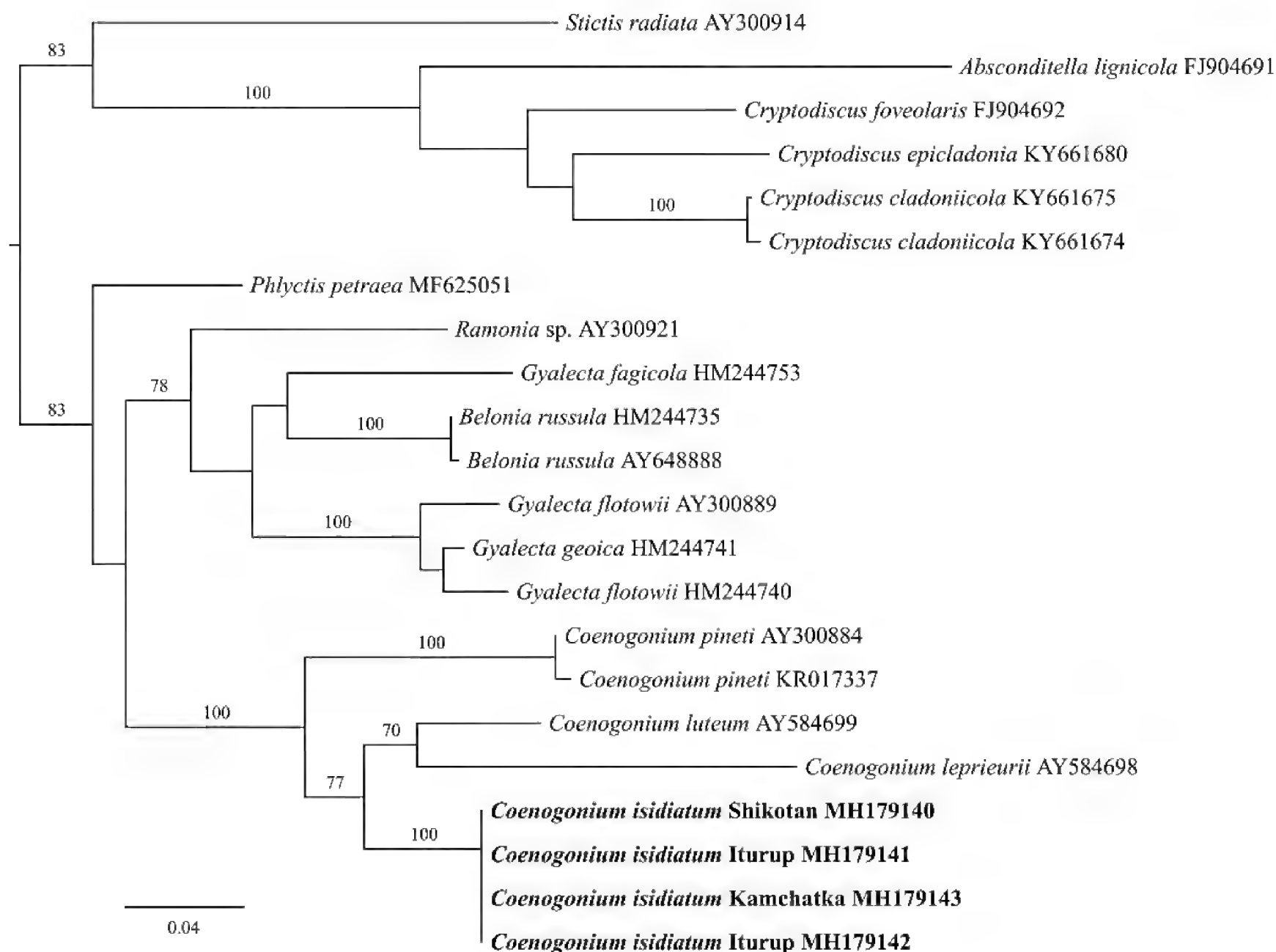


Figure 1. Phylogeny of the genus *Coenogonium* and closely related groups in the Ostropomycetidae inferred from mrSSU sequences and presented as the most likely tree. Numbers on branches represent maximum likelihood bootstrap values $\geq 70\%$. Newly sequenced samples are indicated by bold text.

were available in GenBank, hence the molecular data cannot be used to confirm the identification of our samples that was based on morphological data. We did attempt to generate sequences from the Brazil specimen that we examined (see below), however these were unsuccessful, probably because of the age of the material. Given that *Coenogonium* is a species-rich genus, it is surprising that there are relatively little molecular data available for the group in GenBank. Assembling a comprehensive molecular dataset and phylogeny for the genus is an important avenue for future research, particularly for examining character evolution and confirming the broad geographic distributions of species such as *C. isidiatum*. Below we provide a taxonomic treatment of *C. isidiatum*, including a description of the material from the Russian Far East.

***Coenogonium isidiatum* (G. Thor & Vězda) Lücking, Aptroot & Sipman**, Fun. Divers. 23: 297. 2006. \equiv *Dimerella isidiata* G. Thor & Vězda, Folia Geobot. Phytotax. 19: 72. 1984. **TYPE: NEPAL:** No 4 West (Nuwakot) district, 32 km NW Pokhara, 12 km NW Ghandrung, 28°22'N, 83°45'E, in mixed coniferous-deciduous forest, 3050 m, 01.xii.1979, G. Thor 1479 (S-L2268!), holotype).

FIGURE 2.

DESCRIPTION OF STUDIED SPECIMENS. – Thallus crustose, homoiomerous, thin, smooth, green-grey to grey with bluish tinge; cortex 10–30 μ m thick; medulla not differentiated. Prothallus not seen (absent in type). Isidia numerous, coralloid, 0.2–0.4 mm tall, simple or slightly branched, concolorous with thallus. Apothecia scattered, sessile, rounded, constricted at the base, (0.5–)0.7–1.2(–1.9) mm in diameter (1.5–2 mm in diam. in type material), 0.4 mm tall. Margin concolorous with disc, epruinose, smooth. Disc waxy to orange red, flat or later slightly convex, epruinose. True exciple paraplectenchymatous, colorless, 85 μ m

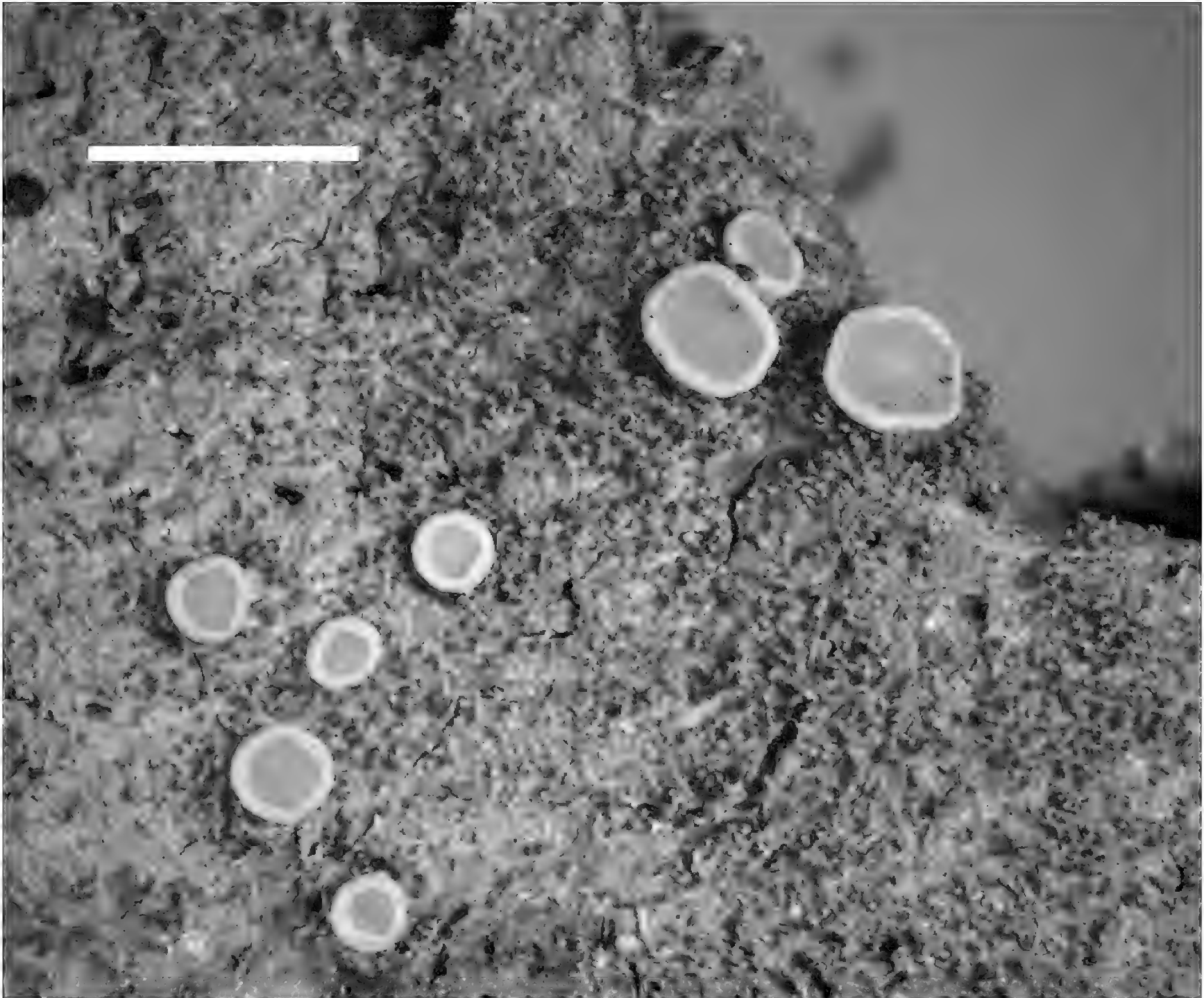


Figure 2. *Coenogonium isidiatum* from Mizhulsky Ridge on Sakhalin Island in Russia (L. Konoreva 198, LE L-14441). Scale = 2 mm. Photograph by S. Chesnokov, 2018.

thick (up to 100 μm in type material), below hymenium 100–150 μm thick (up to 120 μm in type material). Epithecium colourless or yellowish, non-granular, 5–10 μm thick. Hymenium colorless, 82–113 μm high (up to 80–100 μm in type material), J+ blue. Hypothecium yellowish, 10–20 μm high. Paraphyses simple, with tips slightly enlarged up to 4 μm . Asci cylindrical, *Catillaria*-type, with 8 ascospores. Ascospores 1-septate, ellipsoid, colourless, 10–13 \times 2.5–3.5 μm (up to 9–14 \times 3–4 μm in type material), 2.5–3.5 times as long as broad. Pycnidia not seen. Photobiont *Trentepohlia*, cells subglobose, without characteristic chains, 9–15 μm in diameter.

CHEMISTRY. – No substances detected by HPTLC. Spot tests: (thalus cortex and medulla): K-, C-, KC- and P-, UV-.

ECOLOGY AND DISTRIBUTION. – Until now, *Coenogonium isidiatum* has been reported primarily from subtropical and tropical latitudes (Figure 3), albeit primarily high elevations of mountainous regions that are unlike low elevations ecosystems at the same latitudes (e.g., the type locality in Nepal; Thor & Vězda 1984). It has been reported from diverse substrates including the bark of trees, mosses, and rocks. The previously published reports from Asia were largely based on material collected well above sea-level, ranging from approximately 1000 meters elevation (North Korea: Szerdahelyi & Lőkös 1992, Vězda 1988; South Korea: Kondratyuk et al. 2016) to between 3000 and 4300 meters elevation (China: see specimens cited herein; Thor & Vězda 1984). The report from Sri Lanka (Weerakoon & Aptroot 2014) also appears to be based on material collected from a mountainous area, although specific locality data were not provided in the publication. Collections from the New World appear to mostly be derived from low elevations (e.g.,

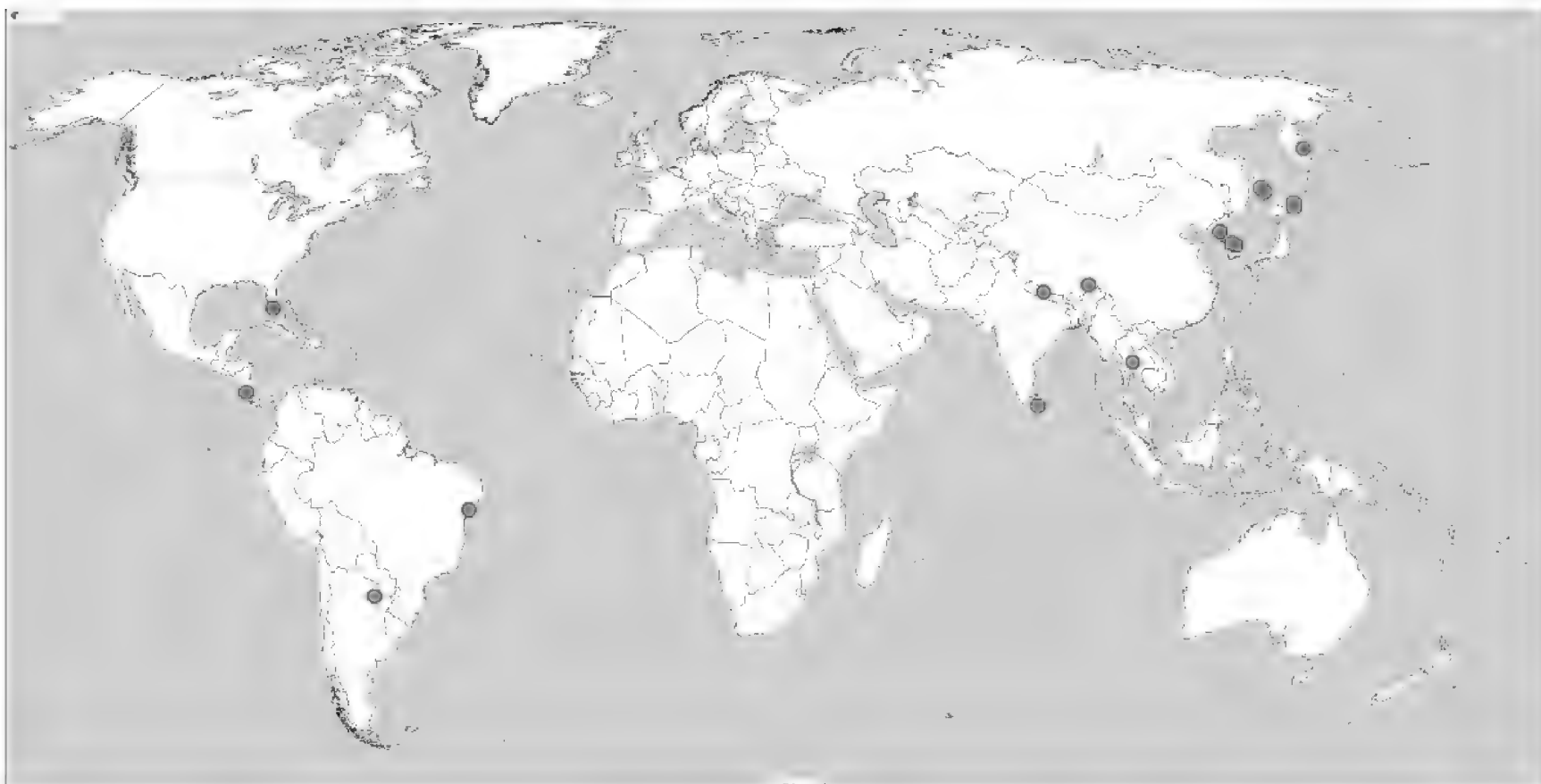


Figure 3. Global distribution of *Coenogonium isidiatum* as presently known. Red dots = newly documented records, blue dots = records from the literature and herbaria.

U.S.A.: Seavey & Seavey 2014, from swamps near sea level; Argentina: Ferraro & Michlig 2013, from ~56 meters elevation). However, the reports from Costa Rica (Rivas Plata et al. 2006) and Brazil (Cáceres et al. 2014) did not provide specific locality data.

Given the broad elevational range of the species as reported in the literature, it is noteworthy, but not necessarily surprising, that the species was found in Far Eastern Russia. Our records expand the range of the species to the boreal zone of the Northern Hemisphere (southern taiga of Sakhalin and Kurile Islands and northern taiga of the Kamchatka Peninsula). The northernmost record in Kamchatka occurs in a unique oceanic spruce forest in Central Kamchatka, which is probably a pre-glacial relict (Dirksen et al. 2013). Primeval spruce forests of the Nikolka Volcano are also refugia for the globally rare lichen *Erioderma pedicellatum* (Hue) P. M. Jørg. and other rare and protected stenotopic species (Vyatkina et al. 2016).

DISCUSSION. – *Coenogonium isidiatum* is morphologically close to *C. isidiigerum* (Vězda & Osorio) Lücking, Aptroot & Sipman and *C. isidiosum* (Breuss) Rivas Plata, Lücking, L. Umaña & Chaves. *Coenogonium isidiigerum* differs by the presence of a white hypothallus and in having much longer ascospores (20–24 μm vs. 10–13 μm in *C. isidiatum*). *Coenogonium isidiosum* can be distinguished by its narrower ascospores (up to 2.5–3 μm width, 4–5 times as long as broad vs. 2.5–4 μm width, 2.5–3.5 times as long as broad in *C. isidiatum*) and brown-yellowish apothecial disc (vs. waxy to orange red of *C. isidiatum*) (Rivas Plata et al. 2006, Gagarina 2015).

Additional specimens examined. – **RUSSIA. SAKHALIN REGION. SAKHALIN ISLAND:** vicinity of city of Yuzhno-Sakhalinsk, Mizhulsky Ridge, 47°03'01"N, 142°30'37"E, 532 m, *Picea* sp.-*Betula* sp. forest on slope, 20.v.2017, on bark of *Picea* sp., L. Konoreva 198 (H, LE L-14441); Tomarinsky District, protected area "Krasnogorsky", vicinity of Lake Uglovskoe, 48°34'55"N, 141°58'38"E, 48 m, *Abies sachalinensis* forest with *Betula* sp. and *Taxus cuspidata*, 14.v.2017, on bark of *Abies sachalinensis*, L. Konoreva 102 (LE L-14440). **ITURUP ISLAND:** protected area "Ostrovnoy", Stokap Volcano, Kraterny Creek, 44°51'01"N, 144°51'01"E, 122 m, rocks in valley of creek, 15.viii.2017, on mosses over rocks, L. Konoreva 606 (LE L-14436); protected area "Ostrovnoy", Stokap Volcano, Kraterny Creek, 44°50'25"N, 147°17'44"E, 369 m, *Picea* sp. forest on slope, 15.viii.2017, on mosses over rocks, L. Konoreva 618 (LE L-14437). **SHIKOTAN ISLAND:** Notoro Mountain, 43°46'10"N, 146°41'56"E, 232 m., rocky outcrop, 14.vi.2017, on plant debris, S. Chesnokov 167 (LE L-14439); Notoro Mountain, 43°46'13"N, 146°41'43"E, 304 m, on rocks among mosses and on soil, 14.vi.2017, S. Chesnokov 172 (LE L-14438). **KAMCHATKA TERRITORY. MIL'KOVO DISTRICT:** northern slope of Nikolka Mountain, 55°24'14"N, 159°49'57"E, 573 m, *Picea ajanensis* pristine forest with *Betula ermanii*, on slope, 21.viii.2016, on mossy base of old

spruce, *I. Stepanchikova Nik-1790* (LE L-14442). **BRASIL. SERGIPE:** Parque dos Falcões, just E of Itabaiana, 10°44'50"S, 37°22'39"W, 400 m, transitional forest, 11.xi.2012, on tree bark, *M. Cáceres & A. Aptroot 15039* (hb. Aptroot). **CHINA. TIBET:** Himalaya Range, 280 km SEE of Lhasa, 40 km SW of Mainling, 4300 m, *Juniperus-Rhododendron* forest, 12.viii.1994, on dead *Juniperus* bark, *W. Obermayer 6072* (UPS L-153698).

ACKNOWLEDGEMENTS

We are grateful to the curators of UPS and S herbaria for permission to access their collections. We also thank A. Aptroot for providing a specimen from Brazil and the editor for significant improvement of the manuscript. The studies in the Sakhalin Region were carried out within the institutional project of the Sakhalin Branch of Botanical Garden-Institute FEB RAS "Cryptogamic biota of Pacific Asia: taxonomy, biodiversity, species distribution". The studies in Kamchatka Territory were conducted in the framework of the institutional research project (no. AAAA-A18-118031590042-0) of the Komarov Botanical Institute of the Russian Academy of Sciences "The lichen flora of the Russian Federation". Ivan Frolov worked in the frame of the national project of the Institute Botanic Garden (Russian Academy of Sciences, Ural Branch).

LITERATURE CITED

- Cáceres, M.E.S., E.L. de Lima Nascimento, A. Aptroot and R. Lücking. 2014. Líquens brasileiros: novas descobertas evidenciam a riqueza no Norte e Nordeste do país. *Boletim do Museu de Biologia Mello Leitão*, new series 35: 101–119.
- Cubero, O.F., A. Crespo, J. Fatehi and P.D. Bridge. 1999. DNA extraction and PCR amplification method suitable for fresh, herbarium-stored, lichenized, and other fungi. *Plant Systematics and Evolution* 216: 243–249.
- Culberson, C. F. and K. Ammann. 1979. Standardmethode zur Dünnschichtchromatographie von Flechtensubstanzen. *Herzogia* 5: 1–24.
- Dirksen, V., O. Dirksen and B. Diekmann. 2013. Holocene vegetation dynamics and climate change in Kamchatka Peninsula, Russian Far East. *Review of Palaeobotany and Palynology* 190: 48–65.
- Ferraro, L.I. and A. Michlig. 2013. New species and additional records of *Coenogonium* (Ostropales: Coenogoniaceae) from southern South America. *The Lichenologist* 45: 497–504.
- Gagarina, L.V. 2015. *Gyalectoid lichens (families Gyalectaceae Stizenb. and Coenogoniaceae (Fr.) Stizenb.) in Extratropical Eurasia*. St. Petersburg, Nestor-Istoria. (In Russian.)
- Gagarina, L.V. 2017. Family Gyalectaceae. Pp. 26–30 in [Andreev, M.P. and D.E. Himelbrant] *The Lichen Flora of Russia. Genus Protoparmelia, families Coenogoniaceae, Gyalectaceae and Umbilicariaceae*. KMK Scientific Press, Moscow–St. Petersburg. (In Russian.)
- Gardes, M. and T.D. Bruns. 1993. ITS primers with enhanced specificity for basidiomycetes. Application for the identification of mycorrhizae and rust. *Molecular Ecology* 2: 113–118.
- Guindon, S. and O. Gascuel. 2003. A simple, fast, and accurate method to estimate large phylogenies by maximum-likelihood. *Systematic Biology* 52: 696–704.
- Hall, T.A. 1999. BioEdit: a user-friendly biological sequence alignment editor and analysis program for Windows 95/98/NT. *Nucleic Acids Symposium Series* 41: 95–98.
- Katoh, K. and D.M. Standley. 2013. MAFFT multiple sequence alignment software version 7: improvements in performance and usability. *Molecular Biology and Evolution* 30: 772–780.
- Katoh, K., K. Kuma, H. Tohand and T. Miyata. 2005. MAFFT version 5: improvement in accuracy of multiple sequence alignment. *Nucleic Acids Research* 33: 511–518.
- Kauff, F. and F. Lutzoni. 2002. Phylogeny of the Gyalectales and Ostropales (Ascomycota, Fungi): among and within order relationships based on nuclear ribosomal RNA small and large subunits. *Molecular Phylogenetics and Evolution* 25: 138–156.
- Kondratyuk, S.Y., L. Lökös, J.P. Halda, M. Haji Moniri, E. Farkas, J.S. Park, B.G. Lee, S.-O. Oh and J.-S. Hur. 2016. New and noteworthy lichen-forming and lichenicolous fungi 4. *Acta Botanica Hungarica* 58: 75–136.
- Kranner, I., R. P. Beckett and A. K. Varma. 2002. *Protocols in lichenology*. Springer-Verlag, Berlin & Heidelberg.
- Lücking, R. 2008. Foliicolous lichenized fungi. *Flora Neotropica Monograph* 103: 1–866.
- Lücking, R. and K. Kalb. 2000. Foliikole flechten aus brasilien (vornehmlich Amazonien), inclusive einer checkliste und bemerkungen zu *Coenogonium* und *Dimerella* (Gyalectaceae). *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 122: 1–16.
- Muscavitch, Z.M., J.C. Lendemer and R.C. Harris. 2017. A review of the lichen genus *Phlyctis* in North America (Phlyctidaceae) including the description of a new widespread saxicolous species from eastern North America. *The Bryologist* 120: 388–417.
- Obermayer, W. 2004. Additions to the lichen flora of the Tibetan region. Pp. 479–526 in [Döbbeler, P. and G. Rambold] *Contributions to Lichenology. Festschrift in Honour of Hannes Hertel*. Bibliotheca Lichenologica, J. Cramer in der Gebrüder Borntraeger, Berlin, Stuttgart.
- Posada, D. 2008. jModelTest: phylogenetic model averaging. *Molecular Biology and Evolution* 25: 1253–1256.

- Resl, P., K. Schneider, M. Westberg, C. Printzen, Z. Palice, G. Thor, A. Fryday, H. Mayrhofer and T. Spribille. 2015. Diagnostics for a troubled backbone: testing topological hypothesis of trapelioid lichenized fungi in a large-scale phylogeny of Ostropomycetidae (Lecanoromycetes). *Fungal Diversity* 73: 239–258.
- Rivas Plata, E., R. Lücking, A. Aptroot, H. J. M. Sipman, J. L. Chaves, L. Umaña, and D. Lizano. 2006. A first assessment of the Ticolichen biodiversity inventory in Costa Rica: the genus *Coenogonium* (Ostropales: Coenogoniaceae), with a world-wide key and checklist and a phenotype-based cladistic analysis. *Fungal Diversity* 23: 255–321.
- Seavey, F. and J. Seavey. 2014. Four new species and sixteen new lichen records for North America from Everglades National Park. *Bryologist* 117: 395–404.
- Szerdahelyi, T. and L. Lőkös. 1992. Botanical collectings by the Hungarian Natural History Museum in Korea. A report on the collectings of the 2nd expedition. *Studia Botanica Hungarica* 23: 127–133.
- Silvestro, D. and I. Michalak. 2012. RaxmlGUI: a graphical front-end for RAxML. *Organisms Diversity and Evolution* 12: 335–337.
- Smith, C. W., A. Aptroot, B.J. Coppins, A. Fletcher, O.L. Gilbert, P.W. James and P.A. Wolseley (eds). 2009. The lichens of Great Britain and Ireland. The British Lichen Society, London. 1046 pp.
- Stamatakis, A., T. Ludwig and H. Meier. 2005. RAxML-III: a fast program for maximum likelihood-based inference of large phylogenetic trees. *Bioinformatics* 21: 456–463.
- Thor, G. and A. Vězda. 1984. Einige neue oder bemerkenswerte Flechten mit gyalectoiden Apothecien von Nord-Indien und Nepal. *Folia Geobotanica & Phytotaxonomica* 19: 71–82.
- Vězda, A. 1988. Lichenes Selecti exsiccati Editi ab Instituto Botanico Academiae Scientiarum Cechoslovacae, Pruhonice prope Pragam. Fasc. XCI (no. 2251-2275). Published by the author, Pruhonice. 7 pp.
- Vězda, A. 1989. Lichenes Selecti exsiccati, editi ab Instituto Botanico Academiae Scientiarum Cechoslovacae, Pruhonice prope Pragam. Fasc. XCIV (no. 2326-2350). Published by the author, Pruhonice. 7 pp.
- Vezda, A. and J. Poelt. 1975. Die Gattungen *Dimerella* und *Pachyphiale*. *Khumbu Himal* 6: 127–132
- Vyatkina, M.P., V.G. Dirksen, N.V. Golub, I.S. Stepanchikova, D.E. Himelbrant, V.A. Masnev, G.M. Tagirdzhanova and A.V. Dyomina. 2016. Primary spruce forests of Nikolka Mountain (Kamchatsky kray, Mil'kovo district) – relict plant communities which deserve special protection. Pp. 44–50 in [Bugayev, V.F., V.V. Maksimenkov, A.M. Tokranov and O.A. Chernyagina] *Conservation of biodiversity of Kamchatka and coastal waters. Proceedings of XVII scientific conference, November 16–17, 2016*. Petropavlovsk-Kamchatsky. (In Russian.)
- Weerakoon, G. and A. Aptroot. 2014. Over 200 new lichen records from Sri Lanka, with three new species to science. *Cryptogamie, Mycologie* 35: 51–62.
- White, T.J., T.D. Bruns, S. Lee and J. Taylor. 1990. Amplification and direct sequencing of fungal ribosomal DNA genes for phylogenies. Pp. 315–322 in [Innis, M.A., D.H. Gelfand, J.J. Shinsky and T.J. White] *PCR Protocols: A Guide to Methods and Applications*. Academic Press, San Diego.
- Zoller, S., C. Scheidegger and C. Sperisen. 1999. PCR primers for the amplification of mitochondrial small subunit ribosomal DNA of lichen-forming ascomycetes. *The Lichenologist* 31: 511–516.

APPENDIX – MOLECULAR VOUCHER METADATA

The table below presents the specimens and GenBank accession numbers used in the molecular component of this study, together with their voucher information. New sequences generated for this study are indicated in bold.

Species	Voucher; location	mrSSU accession	ITS accession
<i>Absconditella lignicola</i>	Baloch et al. (2009)	FJ904691	—
<i>Belonia russula</i>	Grube et al. (2004)	AY648888	—
<i>Belonia russula</i>	Baloch et al. (2010)	HM244735	—
<i>Coenogonium isidiatum</i>	Chesnokov LE-L-14438; Shikotan	MH179140	MH179135
<i>Coenogonium isidiatum</i>	Konoreva LE-L-14437; Iturup	MH179141	MH179136
<i>Coenogonium isidiatum</i>	Konoreva LE-L-14436; Iturup	MH179142	MH179137
<i>Coenogonium isidiatum</i>	Konoreva LE-L-14441; Sakhalin	—	MH179138
<i>Coenogonium isidiatum</i>	Konoreva LE-L-14440; Sakhalin	—	MH179139
<i>Coenogonium isidiatum</i>	Stepanchikova LE-L-14442; Kamchatka	MH179143	—
<i>Coenogonium leprieuri</i>	Lutzoni et al. (2004)	AY584698	—
<i>Coenogonium luteum</i>	Lutzoni et al. (2004)	AY584699	—
<i>Coenogonium pineti</i>	Lumbsch et al. (2004)	AY300884	—
<i>Coenogonium pineti</i>	Resl et al. (2015)	KR017337	—

TABLE CONTINUED FROM PAGE 328.

Species	Voucher; location	mrSSU accession	ITS accession
<i>Cryptodiscus cladoniicola</i>	Pino-Bodas et al. (2017)	KY661675	—
<i>Cryptodiscus cladoniicola</i>	Pino-Bodas et al. (2017)	KY661674	—
<i>Cryptodiscus epicladonia</i>	Pino-Bodas et al. (2017)	KY661680	—
<i>Cryptodiscus foveolaris</i>	Baloch et al. (2009)	FJ904692	—
<i>Gyalecta fagicola</i>	Baloch et al. (2010)	HM244753	—
<i>Gyalecta flotowii</i>	Lumbsch et al. (2004)	AY300889	—
<i>Gyalecta flotowii</i>	Baloch et al. (2010)	HM244740	—
<i>Gyalecta geoica</i>	Baloch et al. (2010)	HM244741	—
<i>Phlyctis petraea</i>	Muscavitch et al. (2017)	MF625051	—
<i>Ramonia</i> sp.	Lumbsch et al. (2004)	AY300921	—
<i>Stictis radiata</i>	Lumbsch et al. (2004)	AY300914	—

Neotypification of *Sarcogyne integra* (Acarosporaceae)

KERRY KNUDSEN^{1*}, JANA KOCOURKOVÁ² AND TIM WHEELER³

ABSTRACT. – The holotype of *Sarcogyne integra* was lost during World War II. A revised description of the species is provided, and a neotype is designated from material collected in Montana, U.S.A.

KEYWORDS. – Brouard, calciphiles, calciphytes, New Mexico, taxonomy.

INTRODUCTION

In 1926, though he could still hike 20 miles a day at the age of 60, Brother Gerfroy Arsène Brouard (1867–1938, Figure 1) moved to Las Vegas, New Mexico, for his health. He was a brother of the Catholic teaching order of the Christian Brothers and taught science in their private schools (Johnson & Johnson 2018). The move must have been beneficial for his health. He collected over 1800 specimens of plants and bryophytes in Santa Fe and Las Vegas. The total amount of his New Mexican lichen collections is unknown, but he assembled over 799 lichen specimens in 1935 and 1936 alone and his collection numbers reached more than 23,000 in 1936 (CNALH 2018). He died in 1938 at the age of 72.

Brouard sent most of his lichen specimens from North America to the French lichenologist Maurice Bouly de Lesdain (Bouly de Lesdain 1914, 1921, 1932). Based on Brouard's collections, A.H. Magnusson published several new species of *Acarospora* A. Massal. and *Sarcogyne* Flot. from New Mexico, depositing the types in Bouly des Lesdain's herbarium (Magnusson 1930, 1935a).

Sarcogyne is a genus of crustose lichenized fungi with polyspored asci and lecideine apothecia, with the margin melanized (parathecial hyphae in matrix of thick reddish brown or black pigment) or carbonized (parathecial hyphae apparently dead) (Knudsen & Standley 2007; Magnusson 1935a, 1935b, 1937). The genus grows on calcareous, non-calcareous rock and in biotic soil crusts in the northern and southern hemisphere and can have either an endolithic or epilithic thallus. There are approximately 36 described species in the genus worldwide based on our own estimation (Index Fungorum 2018; Knudsen & Kocourková 2018). Seventeen species have been reported from North America (Esslinger 2018).

Brouard made fewer than ten collections of *Sarcogyne* in New Mexico (Bouly de Lesdain 1932, Magnusson 1935a). Nonetheless, based on single specimens Bouly de Lesdain described *S. magnussonii* B. de Lesd. while Magnusson described *S. integra* B. de Lesd. ex H. Magn. and *S. novomexicana* H. Magn. (Bouly de Lesdain 1932 Magnusson 1935a). Most of the lichens collected by Brouard, including the type, were stored in the private herbarium of Bouly de Lesdain in Dunkirk, France. During World War II, towards the end the German occupation, allied bombings destroyed most of the city and Bouly de Lesdain's herbarium was also destroyed (Abbeyes 1966; DePriest 1996; Knudsen et al. 2017). All of Brouard's New Mexican *Sarcogyne* collections are now presumed to be lost, including the holotypes and the only specimens of *S. integra*, *S. magnussonii*, and *S. novomexicana*.

¹KERRY KNUDSEN – Department of Ecology, Faculty of Environmental Sciences, Czech University of Life Sciences, Prague, Kamýcká 129, Praha 6 - Suchbát, CZ–165 00, Czech Republic. – e-mail: knudsen@fzp.czu.cz *author for correspondance

²JANA KOCOURKOVÁ – Department of Ecology, Faculty of Environmental Sciences, Czech University of Life Sciences, Prague, Kamýcká 129, Praha 6 - Suchbát, CZ–165 00, Czech Republic. – e-mail: kocourkovaj@fzp.czu.cz

³TIM WHEELER – Organismal Biology, Evolution, and Ecology Program, Division of Biological Sciences, University of Montana, Missoula, Montana 59801, U.S.A. – e-mail: timothybwheeler@gmail.com



Figure 1. Portrait of Brother Gerfroy Arsène Brouard (left) and typical habitat where he hiked and collected (right, Las Vegas, New Mexico; photograph U.S. Fish and Wildlife Service).

In our studies of *Sarcogyne* in Europe and North America, we were able to designate neotypes of *S. magnussonii* and *S. novomexicana* from modern collections (Knudsen & Kocourková 2012, Knudsen & Lendemer 2005). For the last 12 years, we have searched in the field and in herbaria for specimens that match the description in the protologue of *S. integra*. In 2012, Tim Wheeler discovered an unknown *Sarcogyne* growing on dolomite in Montana, in western North America. He then collected more material from additional sites in the region during the following years (2012–2016). We were surprised how well these specimens agreed with description of the original Brouard specimen of *S. integra*. Therefore we decided to select a neotype from this material, even though all the specimens were collected in Montana, while the original type was from New Mexico. Examining the neotype, we also took the opportunity to revise the original description (Magnusson 1935a).

MATERIALS AND METHODS

Hand sections were examined from specimens deposited in COLO, NY, UCR and the private herbaria of Kocourková and Knudsen (hb. K&K) and Tim Wheeler (hb. Wheeler) using standard microscopy (Brodo et al. 2001). The amyloid reaction of the hymenial gel and subhymenium was tested with fresh undiluted IKI (Merck's Lugol) (Knudsen & Kocourková in press). The ascus stain was studied in IKI (Hafellner 1993). Thin-layer chromatography (TLC) was performed by J.C. Lendemer (NY) using Solvent C and following Culberson and Kristinsson (1970), as modified by Lendemer (2011), to check for secondary metabolites. Macrophotographs were taken with an Olympus DP72 digital camera mounted on an Olympus SZX 7 stereomicroscope equipped with PRO-SZM1 - Focus Drive Motorization for stacking images. Images were stacked using Olympus DeepFocus 3.4 module.

TAXONOMIC SECTION

***Sarcogyne integra* B. de Lesd. ex H. Magn.**, Ann. Cryptog. Exot. 7: 141. 1935. **TYPE: U.S.A. NEW MEXICO.** SAN MIGUEL CO.: vicinity of Las Vegas, on weathered calcareous rock, 1927, *Brouard 19930* (hb. B. de Lesdain, holotype [presumed destroyed]). **U.S.A. MONTANA:** MISSOULA CO.: Mission Mountain Wilderness, East St. Mary's Peak Ridge, 47°17'18"N 113°54'18"W, 2644 m., 9.x.2016, on wind-blasted dolomite outcrops, *T. Wheeler 7339* (PRM!, neotype [designated here, MB-T383400]; hb. Wheeler!, isoneotype).

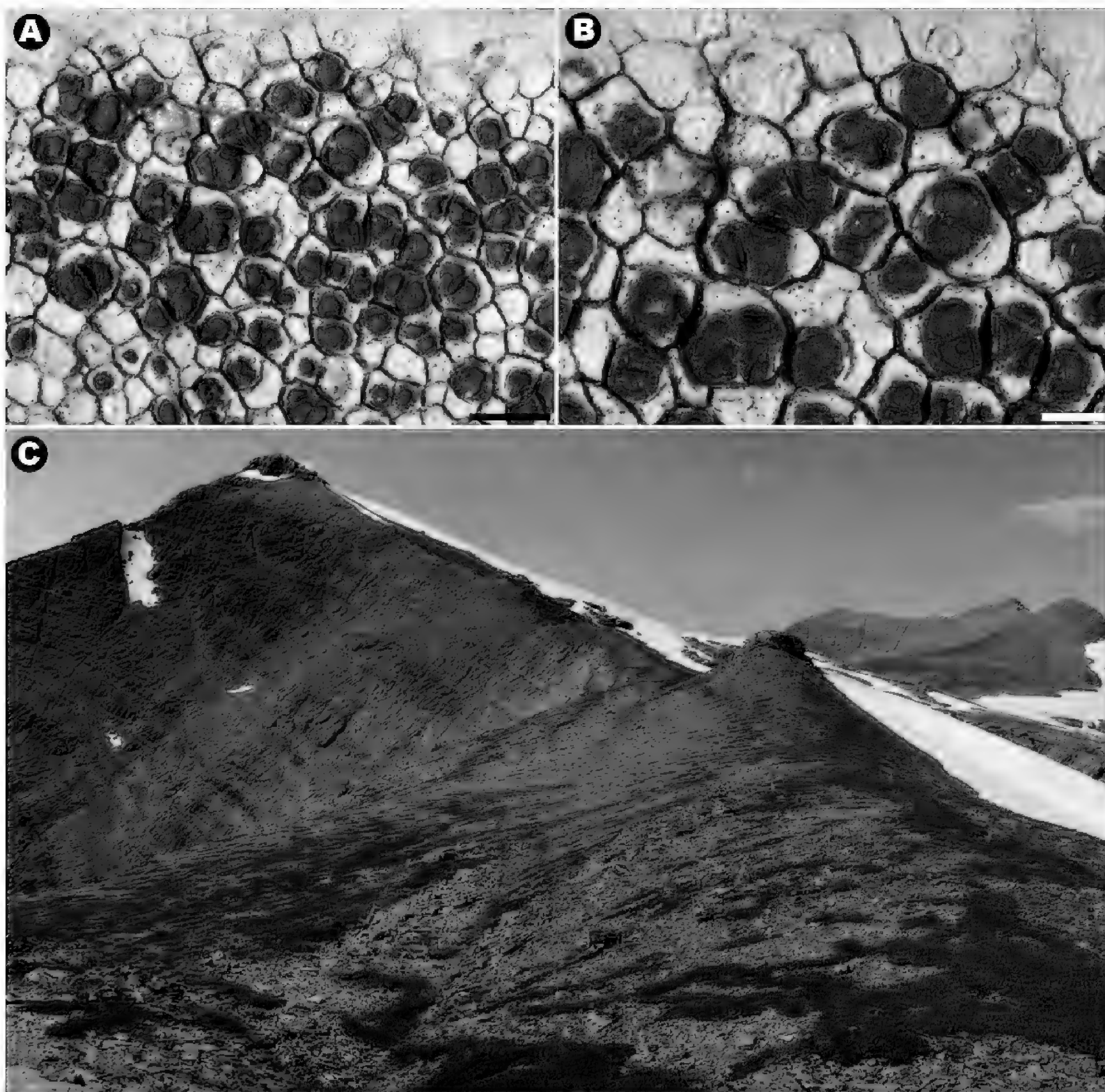


Figure 2. Morphology and habitat of *Sarcogyne integra*. A and B, morphology of the neotype (scale bar = 1.0 mm in A, 0.5 mm in B). C, photograph of the neotype locality taken by TW.

DESCRIPTION. – *Thallus* of contiguous areoles with ecorticate sides, divided by thin cracks up to 300 μm deep, emergent from the rock and sometimes indistinguishable from it, forming small or large areas up to 10 cm in diameter (with or without some open spaces, often half of areoles infertile, angular, variable). *Areoles* mostly 0.3 mm in width but some as wide as 1 mm. *Upper surface* white, smooth, epruinose, becoming slightly ochre when hydrated, *Cortex* non-farinose, thin, about 2–30 μm thick, upper layer red-brown ca. 5 μm thick, lower layer hyaline. *Algal layer* ca. 100 μm thick uninterrupted by hyphal bundles, algal cells coccoid, 8–10 μm in diameter, continuous below apothecia. Medulla soft, of intricate hyphae 2–4 μm wide, obscured by granules from the substrate, crumbling in section. *Apothecia* mostly less than 0.6 mm in diameter, sometimes as wide as 1 mm, usually one per areole, emerging from the center of the areole, and not directly from the substrate, rising above the thallus and eventually occupying the entire areole and appearing as if growing between the areoles. *Parathecium* narrow, expanding around and above disc up to 100 μm in width, raised above the level of the disc, the disc black, reddish when wet, epruinose, smooth. *Hymenium* 65–80 μm tall, I+ blue, amyloid. *Asci* 50–70 \times 10–15 μm , containing one hundred or fewer ascospores. *Ascospores* hyaline, usually short and broadly ellipsoid, 3–4(–6) \times 2–3 μm . *Subhymenium* 30–40 μm tall, I + blue, amyloid. *Hypothecium* indistinct, ca. 10 μm tall. *Pycnidia* not observed.

CHEMISTRY. – No substances detected. Spot tests: K-, C-, KC-, P-, UV-.

DISTRIBUTION AND ECOLOGY. – In North America, *Sarcogyne integra* occurs on sandstone in Las Vegas, New Mexico, and on dolomite in Montana. The Montana localities are all high elevation exposed dolomite ridges, cliffs and ledges.

DISCUSSION. – Many species of *Sarcogyne* that grow on calcareous substrates form white epilithic thalli. Most *Sarcogyne* calciphytes from Asia, Australia and Europe have non-areolate thalli usually less than 0.3 mm thick (Magnusson 1935b, 1937; Knudsen et al. 2009; Knudsen & Kocourková 2012, 2018; Knudsen & Standley 2007; McCarthy & Elix 2017). *Sarcogyne integra*, however, has a thick rimose areolate thallus approximately 0.4 mm thick. *Sarcogyne sekikaica* P.M. McCarthy & Elix from Australia also has a thick areolate thallus but it differs from *S. integra* in producing sekikaic acid and having brownish-gray areoles (McCarthy & Elix 2014). *Sarcogyne albohallina* K. Knudsen, T.B. Wheeler, Kocourk. & M. Westb. from Montana has a white areolate thallus, but it differs from *S. integra* especially in having apothecia with epihymenial melanin accretions (*Polysporina*-type apothecia), and in growing in dry, low-elevation sites (Knudsen et al. 2016).

Magnusson's description of *Sarcogyne integra* is based on a specimen from weathered, pitted sandstone, in which the thallus as well as apothecia were just emerging from the rock; the thallus is thus perhaps not as well developed as in the neotype selected here. Nevertheless, his description particularly of the thallus edges matches the neotype material well, especially where emerging areas of thallus are hard to distinguish from the rock. Also, the hymenium height, amyloid stain of the hymenial gel, and the broadly ellipsoid ascospores perfectly match Magnusson's description. Fourteen years ago we began our search for the missing types of Magnusson's *Sarcogyne* for the Sonoran Lichen Flora Project (Knudsen & Standley 2007). We are happy to be finally done.

Additional specimens examined. – **U.S.A. MONTANA. FLATHEAD CO.:** Nasukoin Mountain Trail, 48°46'37"N, 114°35'19"W, 2299 m, 7.ix.2014, on Piegan Group dolomite, *T. Wheeler* 6579, 6584, 6585 (hb. Wheeler). **LAKE CO.:** Mission Mountain Wilderness, East St. Mary's Peak Ridge, 47°17'27"N 113°54'16"W, 2630 m, 1.x.2014 on dolomite pebble, *T. Wheeler* 6604 (hb. Wheeler); Mission Mountain Wilderness, East St. Mary's Peak Ridge, 47°17'24"N 113°54'19"W, 2622 m, on Helena formation dolomite, 30.ix.2012, *T. Wheeler* 5536 (hb. Wheeler, NY), 5533, 5534, 5538, 5544, 5545, 5552 (hb. Wheeler); Mission Mountain Wilderness, Peak X, 47°18'45"N 113°54'04"W, 2840 m, on windswept dolomite ledges, 17.vii.2007, *T. Wheeler* 1942 (hb. Wheeler); Mission Mountain Wilderness, East St. Mary's Peak Ridge, 47°17'18"N 113°54'18"W, 2644 m., 9.x.2016, on wind-blasted dolomite outcrops, *T. Wheeler* 7332. **LEWIS AND CLARK CO.:** Upper Copper Lake Bowl, ridge to Red Mountain, 47°05'01"N, 112°45'18"W, 2512 m, 12.ix.2015, on Helena formation dolomite, *T. Wheeler* 7140 (UCR, hb. Wheeler), 7135, 7136, 7138, 7163 (hb. Wheeler).

ACKNOWLEDGEMENTS

We thank our reviewers, especially one informative anonymous reviewer who gave us excellent advice, and the curators of COLO and UCR. We thank James C. Lendemer (NY) for thin-layer chromatography. The work of Kerry Knudsen and Jana Kocourková was financially supported by the grant "Environmental aspects of sustainable development of society" 42900/1312/3166 from the Faculty of Environmental Sciences, Czech University of Life Sciences Prague.

LITERATURE CITED

- Abbeyes, H. des. 1966. Le Dr. Maurice Bouly de Lesdain (1869–1965). *Revue Bryologique et Lichenologique* 34: 370–375.
- Bouly de Lesdain, M. 1914. Lichens du Mexique (états de Puebla et du Michoacan) recueillis par le frère Arsène Brouard. Escalante, S.A., Mexico. 31 pp.
- Bouly de Lesdain, M. 1921. Lichenes prope Habanam in insula Cuba, anno 1914 a cl. fratre Arsène Brouard lecti. *The Bryologist* 24: 68–69.
- Bouly de Lesdain, M. 1932. Lichens de l'état de New-Mexico (U.S.A.) recueillis par le frère G. Arsène Brouard. *Annales de Cryptogamie Exotique* 5: 89–139.
- Brodo, I.M., S. Duran Sharnoff and S. Sharnoff. 2001. *Lichens of North America*. Yale University Press, New Haven & London. 795 pp.

- CNALH 2018. Consortium of North American Lichen Herbaria. <http://www.lichenportal.org/portal>. Accessed April 2018.
- Culberson, C.F. and H. Kristinsson. 1970. A standardized method for the identification of lichen products. *Journal of Chromatography* 46: 85–93.
- DePriest, P.T. 1996. Arsène and les Frères des Écoles Chrétiennes collections at the US National Herbarium pertinent to Bouly de Lesdain's Lichens du Mexique. *Cryptogamie, Bryologie-Lichénologie* 17: 87–102.
- Esslinger, T.L. 2018. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. Version#22. *Opuscula Philolichenum* 17: 6–268.
- Hafellner, J. 1993. *Acarospora* und *Pleopsidium* - zwei lichenisierte Ascomycetengattungen (Lecanorales) mit zahlreichen Konvergenzen. *Nova Hedwigia* 56: 281–305.
- Index Fungorum. 2018. <http://www.indexfungorum.org/Names/Names.asp> Accessed April 2018.
- Johnson, D.W. and M.R. Johnson. 2018. Botanical collections of Brother Gerfroy Arsène Brouard. https://msb.unm.edu/news/_pdf/arsene-article.pdf
- Knudsen, K., M.G. Halıcı and M. Kocakaya. 2009. *Sarcogyne magnispora* (Acarosporaceae), a new species in the nivea group from Turkey. *Mycotaxon* 107: 413–417.
- Knudsen, K. and J. Kocourková. 2012. Lichenological notes 5: Neotypification of *Sarcogyne magnussonii* (Acarosporaceae). *Mycotaxon* 121: 139–145.
- Knudsen, K. and J. Kocourková. 2018. *Sarcogyne praetermissa* (Acarosporaceae), a new calcicolous lichen species from Europe, with a key to the European *Sarcogyne* species. *Herzogia* 31: 133–139.
- Knudsen, K. and J. Kocourková. *In press*. Two new calciphytes from Western North America, *Acarospora brucei* and *Acarospora erratica* (Acarosporaceae). *Opuscula Philolichenum*.
- Knudsen, K., J. Kocourková and U. Schiefelbein. 2017. New reports of *Myriospora* (Acarosporaceae) from Europe. *Mycotaxon* 132: 857–865.
- Knudsen, K., J. Kocourková, M. Westberg and T. Wheeler. 2016. Two new species of Acarosporaceae from North America with carbonized epihymenial accretions. *The Lichenologist* 48: 347–354.
- Knudsen, K. and J.C. Lendemer. 2005. Changes and additions to the checklist of North American lichens – III. *Mycotaxon* 93: 277–281.
- Knudsen, K. and S.M. Standley 2007. *Sarcogyne*. Pp. 289–296. *In*: T.H. Nash III, C. Gries and F. Bungartz (eds.): Lichen Flora of the Greater Sonoran Desert Region. Volume 3. Lichens Unlimited, Arizona State University, Tempe.
- Lendemer, J.C. 2011. A review of the morphologically similar species *Fuscidea pusilla* and *Ropalospora viridis* in eastern North America. *Opuscula Philolichenum* 9: 11–20.
- Magnusson, A.H. 1930. The lichen genus *Acarospora* in New Mexico. *Meddelelser från Göteborgs Botaniska Trädgård* 5: 55–72.
- Magnusson, A.H. 1935a. On the species of *Biatorella* and *Sarcogyne* in America. *Annales Cryptogamie Exotique* 7: 115–145.
- Magnusson, A. H. 1935b. Acarosporaceae, Thelocarpaceae. Pp. 1–318. *In*: Zahlbruckner, A. (ed.). Rabenhorst's Kryptogamen-Flora von Deutschland, Österreich und der Schweiz. 2nd edition, Band 9, Abt. 5 (1). Leipzig: Borntraeger.
- Magnusson, A. H. 1937. Additional notes on Acarosporaceae. *Acta Horti Gotoburgensis, Meddelanden från Göteborgs Botaniska Trädgård* 12: 87–103.
- McCarthy, P.M. and J.A. Elix 2014. Two new lichens from Mount Canobolas, New South Wales. *Telopea* 16: 119–125.
- McCarthy, P.M. and J.A. Elix. 2017. Two new species and a new record of Acarosporaceae (lichenized Ascomycota) from eastern Australia. *Australasian Lichenology* 80: 16–27.

Lichens of Canada Exsiccati, Fascicle I, Nos. 1-25

R. TROY McMULLIN^{1*} AND LYNDSEY SHARP²

ABSTRACT. – A new exsiccati is initiated, Lichens of Canada, disseminated by the National Herbarium of Canada (CANL) at the Canadian Museum of Nature. Thirty-one sets of 25 species from the Hudson Bay Lowlands in northern Ontario and Salt Spring Island in British Columbia are distributed to: B, BG, C, CANB, COLO, DUKE, E, EWU, FH, FR, GZU, H, HMAS, KANU, LD, M, MSC, NBM, NFLD, NY, O, OSU, PMAE, QFA, S, SWSG, TNS, TU, UBC, UPS, WIS.

KEYWORDS. – Biodiversity, fungi, lichenology, mycology, natural history collections, sched.

INTRODUCTION

Exsiccati are identically numbered sets of dried specimens distributed to herbaria (Sayre 1969, 1971). Their purpose is to disseminate material from particular areas, or of specific groups of taxa, for examination by researchers in other parts of the world (Stafleu 1972, Stevenson 1971). An exchange of duplicate specimens serves a similar function and is often done instead of exsiccati. The benefit of exsiccati however, is that sets are consistent and provide an alternative to sorting through herbaria to locate specimens from a particular region since they are all in one place and usually organised in a catalogue.

In Canada, two exsiccati that contain lichens have been distributed in the past by the National Herbarium of Canada (CANL) at what is now the Canadian Museum of Nature. The first, ‘*Canadian Lichens*’, was prepared by John Macoun and disseminated in two series. Culberson (1959) and Brodo (1971), however, do not consider Macoun’s sets to be proper exsiccati because locality data and dates were often missing and the material in each set was not consistent. The second one issued, *Lichenes Canadenses Exsiccati*, was distributed in four fascicles and included 250 numbers (Brodo 1971, 1977, 1984; Brodo & Wong 1993). A third set of exsiccati of note was also distributed, “*Lichenes Arctici*”, by John Thomson, which included many lichens from the Canadian Arctic.

A new exsiccati series is initiated here, *Lichens of Canada*, distributed by CANL and produced by the Lichenology Section of the Canadian Museum of Nature. New numbers will be issued regularly consisting of specimens collected throughout the country. Specimens in this fascicle were collected in the Hudson Bay Lowlands of northern Ontario (23 species) and Salt Spring Island in British Columbia (2 species) by the first author.

MATERIALS AND METHODS

Identifications. – We identified specimens with light microscopy and standard chemical spot tests with paraphenylenediamine in ethyl alcohol, nitric acid, sodium hypochlorite, 10% and 20% potassium hydroxide, and Lugol’s iodine (Brodo et al. 2001). We further examined the chemistry using an ultraviolet light chamber. For specimens that could not be identified by morphology, chemical spot tests, or ultraviolet light, we examined the chemistry using thin-layer chromatography following Culberson and Kristinsson (1970) in solvents A, B’, and C.

¹R. TROY McMULLIN – Canadian Museum of Nature, Research and Collections, PO Box 3443 Stn “D”, Ottawa, ON, K1P 6P4, Canada

²LYNDSEY SHARP – Canadian Museum of Nature, Research and Collections, PO Box 3443 Stn “D”, Ottawa, ON, K1P 6P4, Canada

*AUTHOR FOR CORRESPONDENCE – e-mail: tmcmullin@nature.ca

Specimen Preparation. – We prepared specimens using three different methods. The first was for material that required pressing. We softened the lichens with deionized water until pliable. After dividing the material into appropriate sizes for packets, we pressed them between newsprint and corrugated cardboard until dry (1-3 days). The second method was for material on soil. To prevent the soil from breaking apart, we used a 4-1 mixture of Weldbond Universal Adhesive (white PVA glue) and deionized water. The mixture was applied using a paintbrush over the bottom surface and lower edges of specimens and then dried with the lower surface facing up. Lastly, specimens on lignum or branches were cut to appropriate lengths to fit into packets using pruning shears.

We then placed all specimens on UV negative, acid-free cardboard cards, lined with natural, unbleached cotton batting. Specimens that we glued down were affixed with Weldbond Universal Adhesive. We placed the mounted specimens in pure cotton, acid-free paper packets.

DATA FOR FASCICLE I – NUMBERS 1-25

1. *Letharia vulpina* (L.) Hue
Det. R.T. McMullin, 2016

CANADA. BRITISH COLUMBIA. CAPITAL REGIONAL DISTRICT: Municipalities of Greater Victoria, Salt Spring Island, Mount Maxwell Provincial Park, on Mt. Maxwell Road, ca. 1 km below the summit, at a road side pull off. – Lat. 48.8109, Long. -123.5314. – Elev. ca. 482 m. – Old-growth mixed-wood coniferous forest dominated by *Pseudotsuga menziesii*, at the forest edge. – Corticolous on a *Pseudotsuga menziesii* trunk.

R. Troy McMullin #17050
w/ Robert Cameron and Christopher Lewis

31 May 2016

2. *Solorina saccata* (L.) Ach.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 320 km south of Hudson Bay and ca. 280 km west of James Bay on the eastern shore of the Attawapiskat River. – Lat. 52.9261, Long. -85.8394 – Elev. <100 m. – Mature conifer dominated mixed-wood forest on well-drained calcareous soil. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15964
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

15 July 2015

3. *Tuckermanopsis americana* (Spreng.) Hale
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 286 km south of Hudson Bay and ca. 12.6 km south of the Attawapiskat River. – Lat. 52.9801, Long. -85.3964. – Elev. <100 m. – Fen, dominant vegetation includes *Carex chordorrhiza*, *Chamaedaphne calyculata*, *Larix laricina*, *Picea mariana*, *Trichophorum alpinum*, and *T. cespitosum*. – Corticolous. – Accessed by helicopter.

R. Troy McMullin #15978
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

13 July 2015

4. *Phaeocalicium populneum* (Brond. ex Duby) Alb. Schmidt
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 330 km south of Hudson Bay and ca. 280 km west of James Bay along the eastern shore of the Attawapiskat River. – Lat. 52.6858, Long. -85.9378. – Elev. <100 m. – Mature *Populus* stand on well-drained soil within a conifer dominated mixed-wood forest. – Corticolous on *Populus*. – Accessed by helicopter.

R. Troy McMullin #15982
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

20 July 2015

5. *Parmelia sulcata* Taylor
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 330 km south of Hudson Bay and ca. 280 km west of James Bay along the eastern shore of the Attawapiskat River. – Lat. 52.6858, Long. -85.9378. – Elev. <100 m. – Mature *Populus* stand on well-drained soil within a conifer dominated mixed-wood forest. – Corticolous on a conifer. – Accessed by helicopter.

R. Troy McMullin #15983
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

20 July 2015

6. *Cladonia stellaris* (Opiz) Pouzar & Vězda
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 333 km south of Hudson Bay and ca. 4.2 km west of Deugo Lake. – Lat. 52.8319, Long. -86.5564. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15985
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

11 July 2015

7. *Cladonia deformis* (L.) Hoffm.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 333 km south of Hudson Bay and ca. 4.2 km west of Deugo Lake. – Lat. 52.8319, Long. -86.5564. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15986
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

11 July 2015

8. *Calicium tigillare* (Ach.) Pers.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 286 km south of Hudson Bay and ca. 12.6 km south of the Attawapiskat River. – Lat. 52.9801, Long. -85.3964. – Elev. <100 m. – Fen, dominant vegetation includes *Carex chordorrhiza*, *Chamaedaphne calyculata*, *Larix laricina*, *Picea mariana*, *Trichophorum alpinum*, and *T. cespitosum*. – Lignicolous on a snag. – Accessed by helicopter.

R. Troy McMullin #15989
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

13 July 2015

9. *Cladonia rangiferina* (L.) F.H. Wigg.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 328 km south of Hudson Bay and ca. 575 m east of the Muketei River. – Lat. 52.7742, Long. -86.2987. – Elev. <100 m. – Upland forest ecosystem with well-drained soil, dominant vegetation includes *Cladonia stellaris*, *C. stygia*, *Picea* spp., *Pinus banksiana*, and *Pleurozium schreberi*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15990
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

17 July 2015

10. *Evernia mesomorpha* Nyl.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 286 km south of Hudson Bay and ca. 12.6 km south of the Attawapiskat River. – Lat. 52.9801, Long. -85.3964. – Elev. <100 m. – Fen, dominant vegetation includes *Carex chordorrhiza*, *Chamaedaphne calyculata*, *Larix laricina*, *Picea mariana*, *Trichophorum alpinum*, and *T. cespitosum*. – Corticolous. – Accessed by helicopter.

R. Troy McMullin #15991
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

13 July 2015

11. *Cladonia cenotea* (Ach.) Schaer.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 342 km south of Hudson Bay and ca. 4.6 km east of the Muketei River. – Lat. 52.7342, Long. -86.2580. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15992
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

12 July 2015

12. *Icmadophila ericetorum* (L.) Zahlbr.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 333 km south of Hudson Bay and ca. 4.2 km west of Deugo Lake. – Lat. 52.8319, Long. -86.5564. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15994
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

11 July 2015

13. *Cladonia wainioi* Savicz
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 328 km south of Hudson Bay, ca. 293 km east of James Bay, ca. 5 km east of the Muketei River, and 9.7 km west of McFaulds Lake. – Lat. 52.7750, Long. -86.2139. – Elev. <100 m. – Upland forest ecosystem with well-drained soil, dominant vegetation includes *Cladonia stellaris*, *C. stygia*, *Picea* spp., *Pinus banksiana*, and *Pleurozium schreberi*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15995
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

12 July 2015

14. *Cladonia crispata* (Ach.) Flot. var. *crispata*
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 333 km south of Hudson Bay and ca. 4.2 km west of Deugo Lake. – Lat. 52.8319, Long. -86.5564. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15996
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

11 July 2015

15. *Vulpicida pinastri* (Scop.) J.-E. Mattsson & M.J. Lai
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 286 km south of Hudson Bay and ca. 12.6 km south of the Attawapiskat River. – Lat. 52.9801, Long. -85.3964. – Elev. <100 m. – Fen, dominant vegetation includes *Carex chordorrhiza*, *Chamaedaphne calyculata*, *Larix laricina*, *Picea mariana*, *Trichophorum alpinum*, and *T. cespitosum*. – Corticolous on *Picea mariana*. – Accessed by helicopter.

R. Troy McMullin #15998 13 July 2015
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

16. *Cladonia amaurocraea* (Flörke) Schaer.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 330 km south of Hudson Bay and 7.2 km southwest of McFaulds Lake. – Lat. 52.7275, Long. -86.1635. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15999 12 July 2015
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

17. *Hypogymnia bitteri* (Lynge) Ahti
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 391 km south of Hudson Bay and ca. 10.4 km southwest of Kitchie Lake. – Lat. 52.3557, Long. -86.6537. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Corticolous on a conifer. – Accessed by helicopter.

R. Troy McMullin #16202 14 July 2015
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

18. *Cladonia mitis* Sandst.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 342 km south of Hudson Bay and ca. 4.6 km east of the Muketei River. – Lat. 52.7342, Long. -86.2581. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #16203 12 July 2015
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

19. *Hypogymnia physodes* (L.) Nyl.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 286 km south of Hudson Bay and ca. 12.6 km south of the Attawapiskat River. – Lat. 52.9801, Long. -85.3964. – Elev. <100 m. – Fen, dominant vegetation includes *Carex chordorrhiza*, *Chamaedaphne calyculata*, *Larix laricina*, *Picea mariana*, *Trichophorum alpinum*, and *T. cespitosum*. – Corticolous on a conifer. – Accessed by helicopter.

R. Troy McMullin #16205 13 July 2015
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

20. *Peltigera aphthosa* (L.) Willd.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 320 km south of Hudson Bay and ~280 km west of James Bay along the western shore of the Attawapiskat River. – Lat. 52.9233, Long. -85.8450. – Elev. <100 m. – Mature conifer dominated mixed-wood forest on well-drained soil. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #16206
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

21 July 2015

21. *Lobaria pulmonaria* (L.) Hue
Det. R.T. McMullin, 2016

CANADA. BRITISH COLUMBIA. CAPITAL REGIONAL DISTRICT: Municipalities of Greater Victoria, Salt Spring Island, Mount Maxwell Provincial Park, on the southwest slope of Mount Maxwell. – Lat. 48.8026, Long. -123.5294. – Elev. ca. 200 m. – *Quercus garryana* savannah on a steep southwest facing slope, coastal, <1 km from the shore. – Corticolous on a *Quercus garryana*.

R. Troy McMullin #17051
w/ Robert Cameron and Christopher Lewis

30 May 2016

22. *Imshaugia aleurites* (Ach.) S.F. Mey.
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 391 km south of Hudson Bay and ca. 10.4 km southwest of Kitchie Lake. – Lat. 52.3557, Long. -86.6537. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Corticolous on a conifer. – Accessed by helicopter.

R. Troy McMullin #15839
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

14 July 2015

23. *Cladonia subfurcata* (Nyl.) Arnold
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 330 km south of Hudson Bay and ca. 7.2 km southwest of McFaulds Lake. – Lat. 52.7275, Long. -86.1635. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15894
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

12 July 2015

24. *Cladonia uncialis* (L.) F.H. Wigg. ssp. *uncialis*
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 326 km south of Hudson Bay, ca. 20 km north of Missisa Lake, and ca. 35 km east of the Attawapiskat River. – Lat. 52.5924, Long. -85.4446. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15874
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

20 July 2015

25. *Cladonia stygia* (Fr.) Ruoss
Det. R.T. McMullin, 2015

CANADA. ONTARIO. KENORA DISTRICT: ca. 352 km south of Hudson Bay, ca. 13.4 km northeast of Kitchie Lake, and ca. 20.8 km west of the Attawapiskat River. – Lat. 52.5567, Long. -86.3548. – Elev. <100 m. – Sparsely treed bog, dominant vegetation includes *Chamaedaphne calyculata*, *Cladonia stellaris*, *C. stygia*, *Kalmia angustifolia*, *Ledum groenlandicum*, *Picea mariana*, *Sphagnum fuscum*, and *Vaccinium oxycoccus*. – Terricolous. – Accessed by helicopter.

R. Troy McMullin #15895
w/ Jennifer Doubt, Murray Dixon, and Tyler Smith

16 July 2015

ACKNOWLEDGEMENTS

We gratefully acknowledge: Robert Cameron, Jennifer Doubt, Murray Dixon, Christopher Lewis, and Tyler Smith for accompanying the first author in the field; Kimberly Madge and Cassandra Robillard for assisting with specimen preparation; BC Parks for providing permission to collect (file: 98700-20/WC-Mt. Maxwell-16#01); and the Ontario Ministry of the Environment and Climate Change for funding research in northern Ontario that facilitated the collection of most of the specimens in this fascicle.

LITERATURE CITED

- Brodo, I.M. 1971. Lichenes Canadenses Exsiccati: A new series of Canadian lichens. *The Bryologist* 74: 151–153.
Brodo, I.M. 1977. Lichenes Canadenses Exsiccati: Fascicle II. *The Bryologist* 79: 385–405.
Brodo, I.M. 1984. Lichenes Canadenses Exsiccati: Fascicle III. *The Bryologist* 87: 97–111.
Brodo, I.M. and P.Y. Wong 1993. Lichenes Canadenses Exsiccati: Fascicle IV. *Mycotaxon* 46: 135–140.
Brodo, I.M., S.D. Sharnoff, and S. Sharnoff. 2001. *Lichens of North America*. Yale University Press, New Haven, Connecticut. 795 pp.
Culberson, W.L. 1959. “Lichenes Exsiccati” in herbariis Americae Septentrionalis asservati. *The Bryologist* 62: 45–52.
Culberson, C.F. and H. Kristinsson. 1970. A standardized method for the identification of lichen products. *Journal of Chromatography* 46: 85–93.
Stafleu, F.A. 1972. Cryptogamae Exsiccatae. *Taxon* 21: 351–354.
Sayre, G. 1969. Cryptogamae exsiccatae – An annotated bibliography of published exsiccatae of Algae, Lichens, Hepaticae and Musci. *Memoirs of The New York Botanical Garden* 19: 1–174.
Sayre, G. 1971. Cryptogamae exsiccatae – An annotated bibliography of published exsiccatae of Algae, Lichens, Hepaticae and Musci. *Memoirs of The New York Botanical Garden* 19: 175–276.
Stevenson, J.A. 1971. An account of fungus exsiccati containing material from the Americas. *Beihefte zur Nova Hedwigia* 36: 1–563.

Two new calciphytes from Western North America, *Acarospora brucei* and *Acarospora erratica* (Acarosporaceae)

KERRY KNUDSEN^{1*} AND JANA KOCOURKOVÁ²

ABSTRACT. – Two new species that grow on calcareous rock, *Acarospora brucei* and *A. erratica*, are described from North America. *Acarospora brucei* was originally reported as *A. complanata*. It is proposed that the name *A. complanata* be removed from the North American lichen checklist. Sixty-four species of *Acarospora* and 99 species of Acarosporaceae are currently reported in North America. A protocol for reproducible iodine tests of hymenial and subhymenial substances in Acarosporaceae is provided.

KEYWORDS. – *Acarospora sparsa*, Lugol's, Mexico, nomenclature, taxonomy.

INTRODUCTION

The western United States is a center of diversity for Acarosporaceae and most of the 97 species of Acarosporaceae currently reported from North America north of Mexico occur there, particularly in the southwest (Esslinger 2018; Knudsen 2007; Leavitt et al. 2018; Magnusson 1929 & 1956). In this paper we describe two new species, both calciphytes, from western North America.

MATERIALS AND METHODS

Morphological and chemical studies. – Specimens were studied from OSC, UCR, UPS, and from the private herbaria of J. Hollinger (hb. Hollinger), K. Knudsen and J. Kocourková (hb. K & K), B. McCune (hb. McCune), T. Spribille (hb. Spribille) and T. Wheeler (hb. Wheeler), using standard microscopy and spot tests (Brodo et al. 2001). Hand sections were studied and measured in water. Hymenium measurements include the epihymenium. The amyloid reaction of the hymenial and subhymenium substances were tested with fresh undiluted IKI (Merck's Lugol; see notes below for protocol). Ascus staining was studied in IKI, with and without pre-treatment in K (Hafellner 1993). Thin-layer chromatography (TLC) was used to verify the results of spot tests (Orange et al. 2001). Macrophotographs were taken with a digital camera Olympus DP72 mounted on Olympus SZX 7 stereomicroscope equipped with PRO-SZM1 - Focus Drive Motorization for stacking pictures and stacked using Olympus DeepFocus 3.4 module. Microphotographs were taken with a digital camera Olympus DP72 mounted on an Olympus BX51 Light Microscope fitted with Nomarski interference contrast and using Promicra QuickPhoto Camera 3.0 software. The figure plates were processed with QuickPhoto Camera 3.1 software fitted with Promicra Publisher Modul and eventually refined with Adobe Photoshop CS4 Extended ver. 11.0.

¹KERRY KNUDSEN – Department of Ecology, Faculty of Environmental Sciences, Czech University of Life Sciences, Prague, Kamýcká 129, Praha 6 - Suchbát, CZ–165 00, Czech Republic. – e-mail: knudsen@fzp.czu.cz *author for correspondence

²JANA KOCOURKOVÁ – Department of Ecology, Faculty of Environmental Sciences, Czech University of Life Sciences, Prague, Kamýcká 129, Praha 6 - Suchbát, CZ–165 00, Czech Republic. – e-mail: kocourkovaj@fzp.czu.cz

IKI reaction with Merck's Lugol	Euamyloid	Hemiamyloid	
	Type BB	Type RR	Type RB
high iodine concentration	blue	red	red
low iodine concentration	blue	red	blue shades

Table 1. Three types of amyloidity can be distinguished when applying IKI to Acarosporaceae: RB is a type intermediate between BB and RR, but is subsumed under hemiamyloid because of the presence of the red IKI reaction when squashed (adapted from Barel 1987).

Examination of hymenial reactions with Lugol's (IKI). – For our studies of hymenial substances in Acarosporaceae we only use Merck's Lugol (Iodine 3.4 grams per liter; Potassium iodine 6.8 grams per liter) stored in the dark in a dark glass bottle from the factory in an insulated foam box at temperatures between 15–25°C. From a stock solution, Lugol's is poured into small dark glass lab bottles with droppers. It is stored in the dark at the same temperature as the stock solution when not in use at lab temperatures. It is changed once a month. It is shaken before use.

Thin sections of the hymenium are placed in Lugol's without water and squashed with a cover slip to insure saturation. Euamyloid hymenial gel is always dark blue despite the age or concentration of Lugol's used. The blue does not disappear if the slide is left for eight hours to dry, or when more Lugol's is added. There are two possible reactions for hemiamyloid hymenial gel. In the first case, the hymenial gel does not contain the substance that reacts euamyloid to Lugol's, and the reaction to Lugol's is immediately and uniformly red. In the second case, the hymenial gel contains both substances and reacts euamyloid (blue) and hemiamyloid (red). If not squashed and saturated with Lugol's the hymenial gel will usually have a blue or blue yellow to greenish blue reaction to Lugol's. This reaction will usually remain if allowed to dry over eight hours. When squashed, the hymenial gel will remain blue if the Lugol's has not been shaken, is diluted, or has lost its potency. If squashed, and the Lugol's properly shaken, is not diluted, or has not lost its potency, the hymenial gel will quickly turn from blue to red. Thus, there are three types of reactions: blue (abbreviated BB; euamyloid), red-blue (abbreviated RB; containing euamyloid and hemiamyloid substances), and red (abbreviated RR; containing no euamyloid substances) (Barel 1987; summarized in Table 1 herein).

For diagnostic purposes the BB or RR are the most important characters. The RB reaction is the most common reaction in *Acarospora*. The subhymenium in species is often euamyloid. Rarely, when the subhymenium is hemiamyloid (RB or RR), it can be useful as secondary character for identification (Knudsen & Kocourková 2017a). It must be recognized that Magnusson (1929, 1956) did not follow any standardized protocol when testing reactions of the hymenial gel with Lugol's. As such his observations are unreliable, except in the few cases, where he reports strong color reactions, like a dark blue or a deep red reaction. Caution is advised in accepting some reports of euamyloid hymenial gel. For instance, in the description *Acarospora austriaca* H. Magn., Magnusson reports the hymenial gel as euamyloid but it was hemiamyloid (Magnusson 1935, Knudsen unpublished data).

TAXNOMIC SECTION

Acarospora brucei K. Knudsen & Kocourk., sp. nov.
Mycobank #828143.

FIGURE 1.

TYPE: U.S.A. MONTANA. TETON CO.: on hill on W side of Pine Butte Swamp, in *Pinus flexilis* savanna, 47°50'N, 112°36'W, 1480 m, viii.1985, on limestone outcrops, *B. McCune 15165* (OSC!, holotype).

Similar to *Acarospora complanata* but differing in producing gyrophoric acid and occurring on limestone instead of volcanic rock.

DESCRIPTION. – *Thallus* rimose areolate, areoles 0.5–1.0 mm wide, 350–450 µm thick, outer areoles lobulate, lobes undivided, up to 1.5 mm long, widening to 1 mm, forming a single rounded lobe. *Upper surface* dark dull brown, with black hues, rugulose. *Epicortex* thin to indistinct. *Cortex* mostly 30–40 µm thick, upper layer reddish brown, thin, mostly a single cell layer thick, lower area hyaline, easily

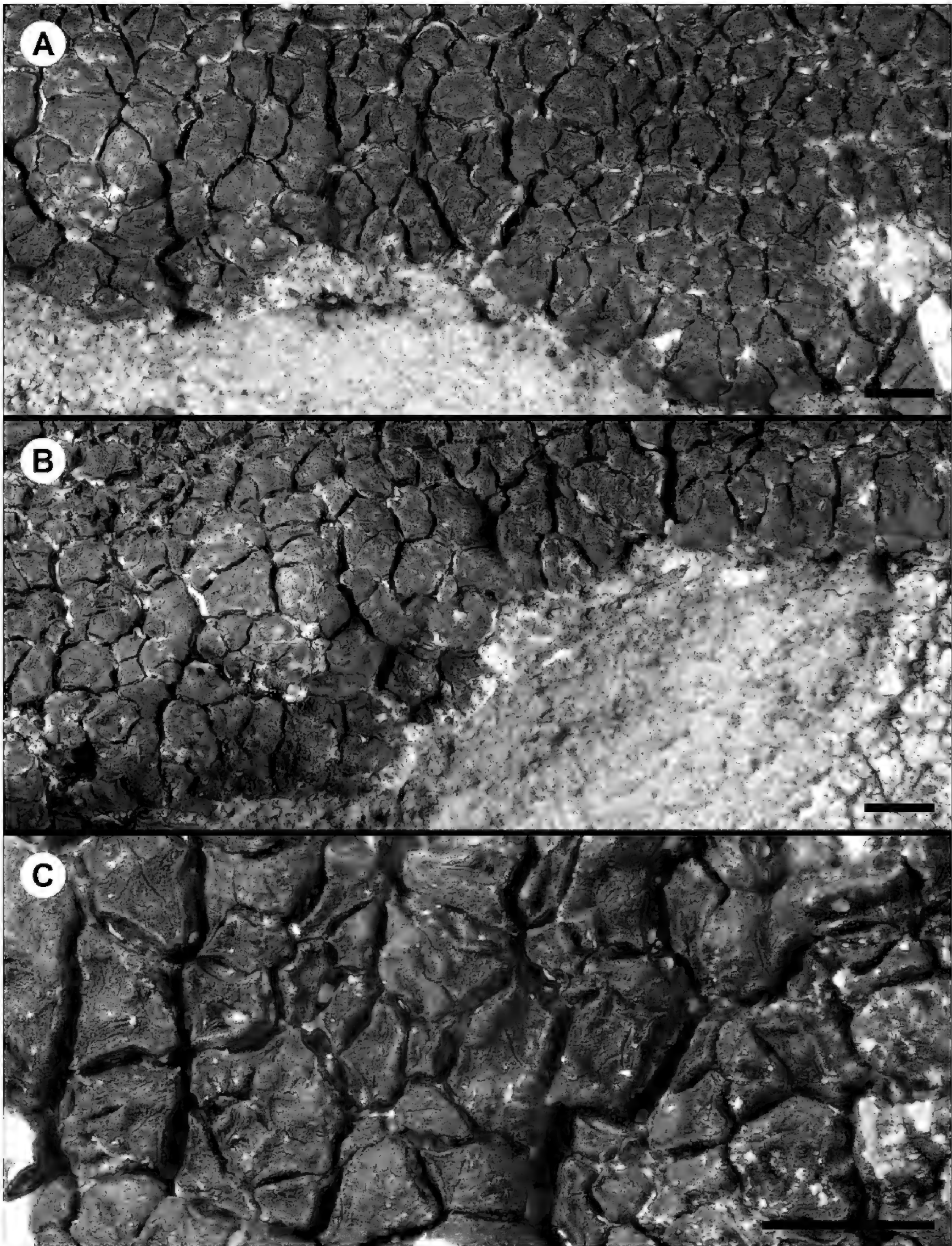


Figure 1. *Acarospora brucei* (holotype, *McCune 15165*). A-B, morphology of thallus, areolate thallus with very slightly prolonged marginal lobes. C, detail of thallus with apothecia. All scales = 1.0 mm.



Figure 2. *Acarospora complanata* H. Magn. (UPS, isotype). The only surviving specimen of *A. complanata* identified by A.H. Magnusson. The rest of the specimens, probably including a large holotype with a well-developed determinate margin, are presumed to have been destroyed in the bombing of Dunkirk when Maurice Bouly de Lesdain's herbarium was destroyed.

observed in water, cells mostly round, mostly 4–5 μm wide, POL+ with crystals from secondary metabolite. *Algal layer* 60–100 μm thick, algal cells mostly 7–10 μm wide, continuous below apothecia, even, with a few slender hyphal bundles, less than 10 μm thick, but not distinctly interrupted. *Medulla* 200–300 μm thick, medullary hyphae thin-walled, 2.0–2.5 μm wide, medulla obscured with substrate crystals, some POL+, the mycelial base thickening with age. *Apothecia* immersed, epruinose, rugulose, 1 to 3 per areole, 100–300 μm wide, disc reddish brown. *Parathecium* 10 μm wide, rarely wider. *Epihymenium* ca. 10 μm thick, reddish-brown and coherent. *Hymenium* 65–80(–100) μm high, paraphyses 1.5–2.5 μm wide, septate, hymenial gel IKI+ blue. Asci 40–50 \times 10–17 μm wide, *Acarospora* type. *Ascospores* mostly 4–5 \times 2.0–2.5 μm , broadly ellipsoid. *Subhymenium* 20–30 μm tall, IKI+ blue. *Hypothecium* thin, 10 μm wide, to indistinct. *Pycnidia* not seen.

CHEMISTRY. – Gyrophoric acid in cortex (TLC, according to specimen annotation by Alphandary & McCune, 2015). Spot tests: cortex K-, C+ pink, KC+ pink, P-, UV-; medulla K-, C-, KC-, P-, UV-.

ETYMOLOGY. – The species is named for the collector Bruce McCune in honor of his work as an ecologist and his study of lichen biodiversity in North America. He has made a major contribution to North American lichenology.

DISTRIBUTION AND ECOLOGY. – Known only from its type locality in North America (Montana) on limestone, overgrowing the edge of another crustose lichen, at an elevation of 1480 m.

DISCUSSION. – Only two described species with a determinate saxicolous thallus which produce gyrophoric acid have been reported in North America: *Acarospora rosulata* H. Magn. and *A. tintickiana* St. Clair, Newberry & S. Leavitt (Knudsen et al. 2010; Leavitt et al. 2018). *Acarospora rosulata* is common in western North America where the species was erroneously reported as *A. bullata* Anzi by Knudsen (2007) and later corrected by Knudsen et al. (2010). *Acarospora brucei* differs from *A. rosulata* in having a dull dark brown rugulose upper surface rather than a usually shiny brown smooth upper surface. *Acarospora brucei* usually has a hymenium that is not as tall as *A. rosulata* (65–100 μm vs. 80–150 μm). *Acarospora brucei* occurs on calcareous rock while *A. rosulata* usually occurs on siliceous rock. *Acarospora tintickiana* occurs on calcareous rock but differs from *A. brucei* especially in having a densely pruinose, orbicular thallus, and usually having a much taller hymenium (90–120 (–150) μm *fide* Leavitt et al. (2018) vs. 65–

80(–100) μm). At least a thirty to fifty micron difference in hymenial heights in a species is common in Acarosporaceae and depends on development of specimen.

Acarospora brucei was originally identified as *A. complanata* H. Magn. (Fig. 2) based on A.H. Magnusson's concept of this species as having a cortex reacting C+ red and in being determinate with similar anatomical measurements (Lendemer & Knudsen 2011). *Acarospora complanata* was reported as occurring in North America (Mexico) as well as in Europe and Africa (Magnusson 1929). In 2005 we tested the isotype, and only specimen of *A. complanata* identified by A.H. Magnusson known to exist, with C (UPS!) We observed a reddish color reaction and, following Magnusson, assumed this reaction to be caused by the presence of gyrophoric acid (Knudsen 2007). Recently, however, J.C. Lendemer (pers. comm.) examined the type of *A. complanata* with TLC and despite its C+ reddish reaction could not confirm gyrophoric acid. This misleading color reaction is a "false positive" caused by a cortical pigment and not gyrophoric acid. Such a "false" spot test reaction is also known from the southwestern species *A. sparsa* H. Magn. which Magnusson also described as being C+ (Magnusson 1933; Knudsen, unpublished). Consequently, the name *A. complanata* refers to a species that does produce gyrophoric acid and occurs on basalt. The name was thus misapplied to *A. brucei*, a morphologically similar species that, however, produces gyrophoric acid and grows on limestone (Lendemer & Knudsen 2011, Magnusson 1929). Even though Magnusson (1929) reported *A. complanata* from Mexico, the specimen upon which this record is based could not be located. It is quite possible that these reports from Michoacan, at an elevation of 2400 m, growing on unspecified rock substrate, may instead refer to *A. brucei*.

Without molecular analysis, we would usually hesitate to describe a new species based on a single specimen unless that taxon were characterized by conspicuous phenotypic characters and a distinct effort made to find additional material. Unfortunately, Bruce McCune never collected *A. brucei* again. A distinct effort was made to discover other specimens. The species was not observed by the authors among numerous collections of North American Acarosporaceae made by Toby Spribille, which we examined at the University of Graz, Austria. Tim Wheeler, who collected lichens extensively on limestone in Montana, has never found the species either. Finally, the first author was unable to find any material among the collections of *Acarospora* from North America at the herbarium of University of Colorado, Boulder (COLO).

The difference in chemistry and different substrate preference clearly distinguishes the newly described *Acarospora brucei* from *A. complanata*. Since *A. brucei* has previously been reported, although erroneously as *A. complanata*, and an extensive search for more specimens was performed over several years, we consider ourselves justified in introducing a name for the taxon (Lendemer & Knudsen 2011). To preserve the minute type specimen of *A. brucei*, previously already much damaged from sectioning, we limited our study to three more apothecial sections and one section of an areole. Anatomical characteristics described here are based on a conservative previous study and this meager new study (Lendemer & Knudsen 2011). It is possible in some specimens the punctiform apothecia may become dilated and be up to 1 mm wide as was the case of *Acarospora trachyticola* (Müll. Arg.) Hue from South America which was described as having punctiform apothecia (Knudsen et al. 2012). We hope that our description can be refined, once more material of the species becomes available.

Acarospora obscura H. Magn. was previously synonymized with *A. complanata* by Clauzade et al. (1981). Magnusson's (1929) description of this species was based on material from Mexico, but the protologue also cited specimens from Africa. We could not locate any type material of *A. obscura* from Mexico; all specimens were presumably destroyed with Bouly de Lesdain's herbarium in Dunkirk during World War II (Abbeyes 1966, Knudsen et al. 2017). In the protologue Magnusson (1929) expressed doubts as to whether the North American and African specimens truly belonged to the same species: "Whether the identity between the American and the African specimens is complete is not easy to state owing to the smallness of the areolae".

Later Magnusson cited a collection made by A.C. Herre in California as *A. obscura* (Magnusson 1956). During the Sonoran flora project, the first author examined this specimen from California (UPS!) and concluded that it was *A. veronensis* A. Massal., matching a type specimen of that species from Italy (FH!) and agreeing also with other specimens of *A. veronensis* from California, including one identified by Magnusson himself, collected by C.C. Kingman in the San Gabriel Mountains of southern California (O!). (Knudsen 2007, Magnusson 1929). Because Clauzade et al. (1981) had synonymized *A. obscura* with *A. complanata* and based on Magnusson's erroneous record of *A. obscura* from California, Egan (1987) included *A. complanata* on the checklist of lichens in North American north of Mexico. Recently, however, Roux (2007), suggested that six *Acarospora* species including *A. obscura* must no longer be considered

synonymous with *A. complanata*. We agree with Roux' revision of the synonymy of *A. obscura* with *A. complanata*. The record of *A. complanata* on the current North American checklist, however, is incorrect because of the misidentification of the taxon that we here describe as *A. brucei* (Esslinger 2018, Lendemer & Knusen 2011). *Acarospora complanata* should be removed from the North American checklist. Nevertheless, both *Acarospora complanata* and *A. obscura* should, for now, still be included as part of the any future Mexican checklist.

Acarospora erratica K. Knudsen & Kocourk., sp. nov.
Mycobank #828144.

FIGURE 3.

Similar to *Acarospora coloradiana* but differing especially in having hemiamyloid hymenial gel and a thallus that is usually epruinose, without distinct fissures.

TYPE: U.S.A. CALIFORNIA: SAN BERNARDINO CO., San Bernardino Mountains, San Bernardino National Forest, 3NO3, 34°15'39.5"N, 116°43'36"W, 1961 m, along seasonal stream bed, pinyon-juniper woodland with Joshua trees, 5.xi.2014, on limestone, K. Knudsen et al. 17026 (PRM!, holotype; UCR!, isotype).

DESCRIPTION. – *Hypothallus* endosubstratal, I-, continuous with medullary hyphae, with no algal cells observed. *Thallus* of dispersed verruciform rounded areoles, mostly 0.5 mm in diam., mostly 0.3–0.4 µm tall, with usually one apothecium. *Upper surface* light brown to dark brown, epruinose or pruinose, the areole broadly attached with no distinct lower surface, replicating by division. *Cortex* 20–35 µm thick, lacking an epicortex, upper layer brown pigmented, lower layer hyaline, cortical cells mostly round, typically 4–5 µm in diam. *Algal layer* up to 100 µm thick, uninterrupted by hyphal bundles, algal cells 5–10 µm wide. *Medulla* to 200 µm thick, mixed with substrate particles, medullary hyphae thin-walled, mostly 2–3 µm wide. *Apothecia* usually one per verruca, disc immersed, epruinose or rarely pruinose, plane, round, darker than thallus when dry, reddish when wet, up to 0.4 mm wide, deeply immersed, sometimes the disc dilating until thallus is reduced to a thin margin and the apothecia appear pseudo-lecanorine, rarely contiguous with more than two apothecia and only observed in the populations in the White Mountains on dolomite in shade. *Parathecium* often indistinct, of thin hyphae, not expanding around disc, to 10 µm wide, often ending below thalline surface. *Epihymenium* coherent in red-brown gel, ca. 5–10 µm high. *Hymenium* 80–100 µm high, hymenial gel IKI+ blue turning red, hemiamyloid. *Paraphyses* slender to stout, 1.5–2.0(–3.0) µm wide at mid-level, septate, oil drops common, apices narrow or slightly expanded (to 3 µm wide in some California specimens). *Asci* 60–100 × 25 µm, over 100 ascospores per ascus. *Ascospores* subglobose to broadly ellipsoid, variable, 2–4(–5) × 1.5–2.5(–3.0) µm (n=50), often with one or two oil drops, rarely some being narrowly ellipsoid (5 × 2 µm). *Subhymenium* 20–49 µm tall, IKI+ blue, euamyloid. *Hypothecium* 10 µm high. *Pycnidia* not observed.

CHEMISTRY. – No secondary metabolites (TLC in solvent C, performed by J.C. Lendemer in 2015). Spot tests: K-, C-, KC-, P-, UV-.

ETYMOLOGY. – Named for its frequent occurrence on small dolomite pebbles.

ECOLOGY AND DISTRIBUTION. – On calcareous rock, usually dolomite, in western North America (California, Idaho, Montana, and Utah).

DISCUSSION. – *Acarospora erratica* usually produces dispersed verruciform areoles with solitary immersed apothecia. Infrequently the apothecial disc expands, reducing the thallus to a thin margin, forming pseudolecanorine apothecia (Knudsen & Kocourková 2017b). When the areoles become pseudolecanorine, *A. erratica* could be confused with some morphs of *A. canadensis* H. Magn. However, that calciphyte has an IKI+ deep blue euamyloid hymenial gel (Magnusson 1929). The rare *A. coloradiana* H. Magn. has verruciform to pseudolecanorine areoles, usually with solitary apothecia and subglobose to broadly ellipsoid ascospores (3.0–4.0 × 2.5–3.0 µm). It differs from *A. erratica* also in having euamyloid hymenial gel (IKI+ deep blue) and in forming pruinose thalli with distinct fissures, morphologically thus belonging to the *A. strigata* group sensu Nurtai et al. (2017). Two species that always form

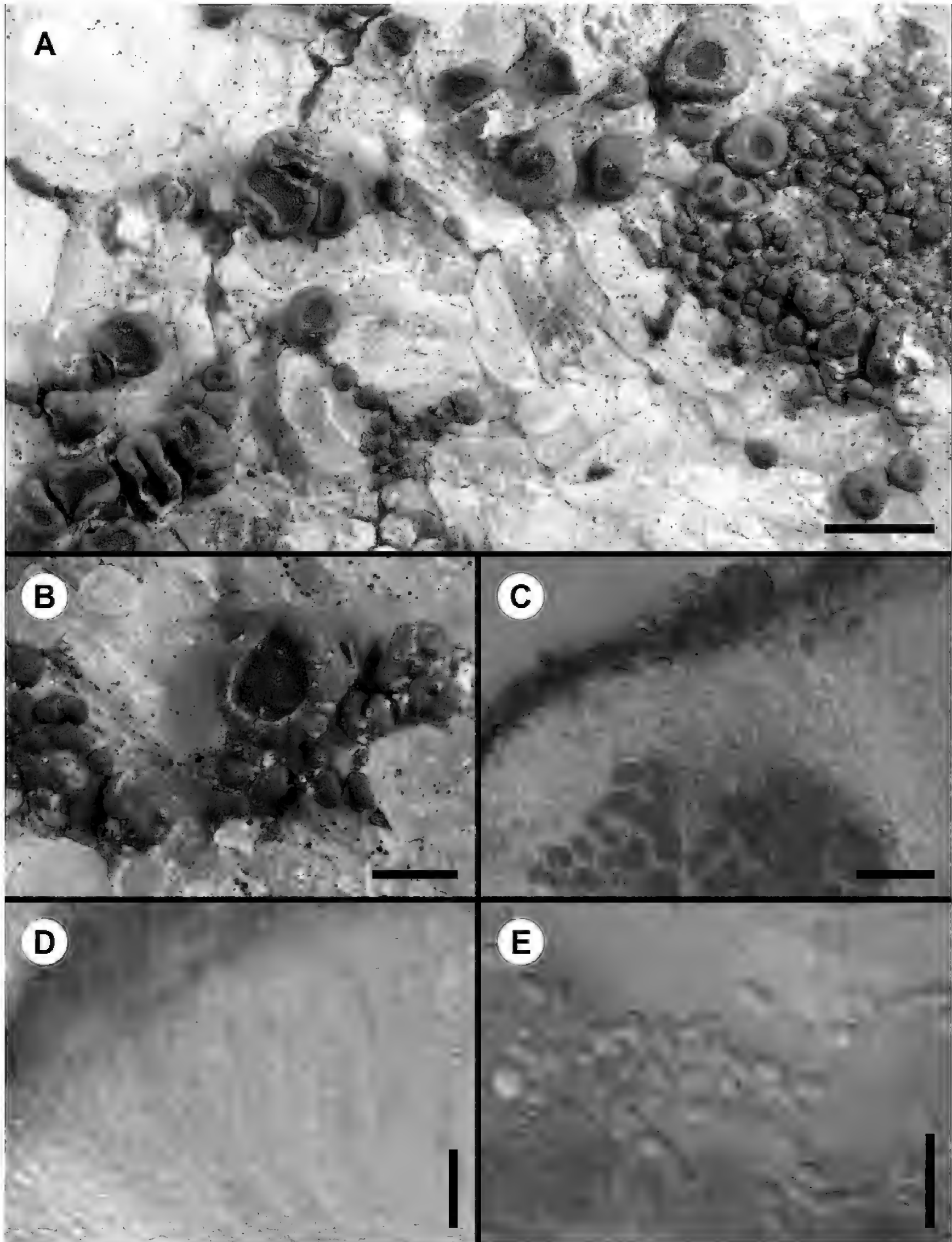


Figure 3. *Acarospora erratica* (holotype, *Knudsen et al. 17026*). A, morphology of the thallus. B, detail of apothecium. C, vertical section of apothecial margin. D, paraphyses. E, ascospores. Scales = 1.0 mm in A & B, 20 μ m in C & D, and 10 μ m in E.

pseudolecanorine areoles, *A. janae* K. Knudsen and *A. toensbergii* K. Knudsen & Kocourk., occur on siliceous rocks (Knudsen & Kocourková 2017b; Knudsen et al. 2011). *Acarospora janae* differs from *A. erratica* in producing gyrophoric acid and has euamyloid hymenial gel. *Acarospora toensbergii* differs from *A. erratica* in having larger ascospores ($7 \times 3 \mu\text{m}$ vs. $3\text{--}4 \times 2.5\text{--}3.0 \mu\text{m}$) and a broad parathecium, while *A. erratica* has a very thin to indistinct parathecium. When *A. erratica* forms areoles with several apothecia, which is rare, it can easily be distinguished by the predominance of young subglobose to broadly ellipsoid ascospores ($2\text{--}4 \times 2.5\text{--}3.0 \mu\text{m}$) and the low hymenium with hemiamyloid hymenial substances. It is necessary to carefully examine the iodine reactions according to the protocol outlined in the methods section above. Some species, like *A. erratica*, have a hymenial gel that can react light blue before turning red and will stay blue with IKI if IKI has a low iodine concentration.

Selected specimens examined. – **U.S.A. CALIFORNIA.** INYO CO.: Inyo National Forest, White Mountains, $37^{\circ}23'11.6''\text{N}$, $118^{\circ}10'39.9''\text{W}$, 3037 m, 16.vii.2012, on dolomite in shade of Bristlecone Pines, K. Knudsen et al. 14793 (UCR); Shulman Grove, $37^{\circ}23'05.4''\text{N}$, $118^{\circ}10'36.7''\text{W}$, 3052 m, 14.vii.2014, on dolomite on sunny slope, K. Knudsen 16941.1 (UCR). **IDAHO.** ELMORE CO.: 7 km NW of Mountain Home River Plain, $43^{\circ}10'\text{N}$, $116^{\circ}46'\text{W}$, 985 m, vi.1991, on caliche pebble, B. McCune 19865 (OSC). SHOSONE CO., North Fork, Coeur D'Alene River Road, $40^{\circ}09'33''\text{N}$, $117^{\circ}45'01''\text{W}$, 853 m, 30.v.2012, on Mount Shield dolomite, T. Wheeler 5784 (hb. Wheeler). **MONTANA.** LAKE CO.: south side of Bull Island in Flathead Lake, $47^{\circ}6'\text{N}$, $114^{\circ}7'\text{W}$, 890 m, vii.1983, on HCl+ rock, B. McCune 12922 (OSC); Jocko River Canyon, $47^{\circ}11'35''\text{N}$, $113^{\circ}57'00''\text{W}$, elevation not recorded, 3.iv.2012, on Sax helena Dolomite T. Wheeler 3829 (hb. Wheeler). LEWIS & CLARK CO.: E of Roger Pass, $47^{\circ}05'52''\text{N}$, $112^{\circ}21'37''\text{W}$, 1554 m, 15.vii.2011, on Sax helena Dolomite, T. Wheeler 3478 (hb. Wheeler). LINCOLN CO.: Northern Salish Mountains, ca. 7 km S of Rexford, $48^{\circ}50'11''\text{N}$, $115^{\circ}11'19''\text{W}$, 875 m, 30.vii.2006, on small green argillite rock in low elevation *Pseudotsuga menziesii*-*Pinus ponderosa* forest, T. Spribille 21134 (hb. Spribille); road running north from Murphy Lake Campground, $48^{\circ}44'46''\text{N}$, $114^{\circ}51'45''\text{W}$, 970 m, 24.iv.2001, on loose calcareous rocks in sparsely vegetated opening in valley-bottom *Pseudotsuga menziesii*-*Larix occidentalis* forest, T. Spribille 10881 (hb. Spribille); Northern Salish Mountains, W of Trego, bedrock meadow above FS Road 494, $48^{\circ}37'10''\text{N}$, $115^{\circ}04'\text{W}$, 1480 m, 27.vii.2006, on dolomitic erratic, T. Spribille 20743 (hb. Spribille). MISSOULA CO.: Blackfoot River, $46^{\circ}54'28''\text{N}$, $113^{\circ}43'11''\text{W}$, 1045 m, 26.iii.2013, on dolomite river cobbles, T. Wheeler 5430 (hb. Wheeler). **UTAH.** San Juan Co.: Bridger Jack Mesa, $37^{\circ}58'58''\text{N}$, $100^{\circ}37'22''\text{W}$, 1925 m, 10.v.2017, on calcareous red sandstone, J. Hollinger 17419 (hb. Hollinger).

CONCLUSION

We continue to see new taxa of Acarosporaceae from North America north of Mexico and expect more species to be discovered and described. We are still a long way from a comprehensive assessment of Acarosporaceae in North America. The descriptions of these two species, the removal of *A. complanata* from the North American lichen checklist, and the recent publication of *A. tintickiana*, brings the current total to 66 species of *Acarospora* and 99 species of Acarosporaceae reported from North America north of Mexico. Nonetheless more new reports are inevitable.

ACKNOWLEDGEMENTS

We thank our reviewers and editor for their valuable contributions to this paper. We appreciate the opportunity to study material from GZU, OSC, UCR, UPS, and the personal collections of Jason Hollinger, Bruce McCune, Toby Spribille, and Tim Wheeler. James C. Lendemer kindly examined secondary metabolites of *A. complanata* and *A. erratica* with TLC. Our work received financial support through 42900/1312/3166, Environmental aspects of sustainable development of society, a grant from the Faculty of Environmental Sciences, Czech University of Life Sciences Prague

LITERATURE CITED

- Abbeyes, H des. 1966. Le Dr. Maurice Bouly de Lesdain (1869–1965). *Revue Bryologique et Lichenologique* 34: 370–375.
- Baral, H.O. 1987. Lugol's solution / IKI versus Melzer's reagent: hemiamyloidity, a universal feature of the ascus wall. *Mycotaxon* 29: 399–450.

- Brodo, I.M., S. Duran Sharnoff and S. Sharnoff. 2001. *Lichens of North America*. Yale University Press, New Haven & London. 795 pp.
- Clauzade G., C. Roux and R. Rieux. 1981[1982]. Les *Acarospora* de l'Europe occidentale et de la region méditerranéenne. Bulletin du Musée de Histoire Naturelle de Marseille 41: 41–93.
- CNALH (Consortium of North American Lichen Herbaria). 2018. <http://lichenportal.org/portal/> Accessed February 2018.
- Egan, R.S. 1987. A fifth checklist of the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. The Bryologist 90: 77–173.
- Esslinger, T.L. 2018. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. Version#22. Opuscula Philolichenum 17: 62–68.
- Hafellner, J. 1993. *Acarospora* und *Pleopsidium* - zwei lichenisierte Ascomycetengattungen (Lecanorales) mit zahlreichen Konvergenzen. Nova Hedwigia 56: 281–305.
- Knudsen, K. 2007[2008]. *Acarospora*. In: Nash III, T.H., C. Gries and F. Bungartz. (eds). Lichen flora of the Greater Sonoran Desert Region, Volume 3. Lichens Unlimited, Tempe. pp. 1–38.
- Knudsen, K., A. Flakus, and M. Kukwa. 2012. A Contribution to the Study of Acarosporaceae in South America. The Lichenologist 44: 253–262.
- Knudsen, K. and J. Kocourková. 2017a. What is *Acarospora nitrophila* (Acarosporaceae)? The Bryologist 120: 124–128.
- Knudsen, K. and J. Kocourková. 2017b. *Acarospora toensbergii* (Acarosporaceae), a new species from Alaska, U.S.A. Opuscula Philolichenum 16: 317–321.
- Knudsen, K., J. Kocourková and U. Schiefbein. 2017. New reports of *Myriospora* (Acarosporaceae) from Europe. Mycotaxon 132: 857–865.
- Knudsen, K., J.C. Lendemer and R.C. Harris. 2011. Lichens and lichenicolous fungi – no. 15: miscellaneous notes on species from eastern North America. Opuscula Philolichenum 9: 45–75
- Knudsen, K., V. Reeb, M. Westberg, R. Srikantha and D. Bhattacharya. 2010. *Acarospora rosulata* in Europe, North America and Asia. The Lichenologist 42: 291–296.
- Leavitt, S.D., C.C. Newberry, J. Hollinger, B. Wright and L. St. Clair. 2018. An integrative perspective into diversity in *Acarospora* (Acarosporaceae, Ascomycota), including a new species from the Great Basin, U.S.A. The Bryologist 121: 275–285.
- Lendemer, J.C. and K. Knudsen. 2011. Studies in lichens and lichenicolous fungi: 7. More notes on taxa from North America. Mycotaxon 115: 45–52.
- Magnusson, A.H. 1929. A monograph of the genus *Acarospora*. Kungliga Svenska Vetenskaps Akademiens Handlingar, ser. 3, 7: 1–400.
- Magnusson, A.H. 1933. Supplement to the monograph of the genus *Acarospora*. Annales de Cryptogamie Exotique 6: 13–48.
- Magnusson, A.H. 1935. Acarosporaceae, Thelocarpaceae. Pp. 1–318. In: Zahlbruckner, A. (ed.). Rabenhorst's Kryptogamen-Flora von Deutschland, Österreich und der Schweiz. 2nd edition, Band 9, Abt. 5 (1). Leipzig: Borntraeger.
- Magnusson, A.H. 1956. A second supplement to the monograph of *Acarospora* with keys. Goteborgs Kungliga Vetenskaps & Vitterhets.-Samhalles Handlingar sjatte foljden ser. B 6(17): 1–34.
- Nurtai, L., K. Knudsen and A. Abbas. 2017. A new species of the *Acarospora strigata* group (Acarosporaceae) from China. The Bryologist 120: 382–387.
- Orange, A., P.W. James, P.W. and F. J. White. 2001. *Microchemical Methods for the Identification of Lichens*. British Lichen Society, London. 101 pp.
- Roux, C. 2007. Likenoj de Okcidenta Eŭropo. Suplemento 4a: eltiraĵoj 2 (extraits 2). Bulletin d'Informations de l'Association Française de Lichénologie 32(2): 5–36.

A Preliminary Lichen Checklist of the Redstone Arsenal, Madison County, Alabama

CURTIS J. HANSEN¹

ABSTRACT. – Lichens were surveyed across nine ecologically sensitive areas of the U.S. Army's Redstone Arsenal in Madison County, Alabama. From a total of 464 collections, 151 species in 64 genera were identified, including 12 state records and three new species currently being described. Prior to this study, only eight lichen species had been documented from the Redstone Arsenal and less than 40 were known from Madison County. Newly reported lichens for Alabama include *Caloplaca pollinii*, *Clauzadea chondrodes*, *Enchylium coccophorum*, *Hypotrachyna dentella*, *Lepraria xanthonica*, *Phaeophyscia hirsuta*, *Phaeophyscia leana*, *Physciella chloantha*, *Physconia leucoleiptes*, *Physconia subpallida*, *Punctelia graminicola*, and *Usnea halei*. Results from this study represent the first lichen survey of the Redstone Arsenal and will serve as a baseline for future studies.

KEYWORDS. – Lichen biodiversity, North America, northern Alabama, southern Highland Rim, Tennessee Valley, United States.

INTRODUCTION

Lichens of northern Alabama are poorly studied and virtually no records have been published from Madison County. Though many papers documenting lichens from nearby regions exist, including the Great Smoky Mountains (Lendemer et al. 2013) and Southern Appalachian Mountains (Dey 1978), there are no published lichen reports from this area of northern Alabama. One state-wide checklist documented two lichen species from Madison County (Hansen 2003). A search of the Consortium of North American Lichen Herbaria (CNALH 2017) resulted in only 38 lichen specimens from Madison County, including eight from Redstone Arsenal (hereafter abbreviated RA). Currently there is ongoing research to document the broad lichen biodiversity in the southern Appalachian Mountains, including in Madison County and several other northern Alabama counties (J.C. Lendemer and E.A. Tripp, pers. comm.).

In 1995, survey work was completed on federal and state-listed species of plants and animals found on RA from across nine ecologically sensitive areas (Godwin & Hilton 1995). In 2016, staff at the Auburn University Museum of Natural History were contracted to resurvey the ecologically sensitive areas for state and federally listed plants and animals, updating the original 1995 survey. Lichens were not included in the original 1995 survey but staff at RA were interested in having lichens surveyed for inclusion in the updated report. This study is the result of that survey work and represents the first systematic sampling of lichens across RA, documents many taxa for the first time from Madison County, Alabama.

MATERIALS AND METHODS

The Study Area. Redstone Arsenal is a 15,050 ha landholding southwest of Huntsville in Madison County, Alabama, and is owned by the U.S. Department of Defense. Originally created in 1941 to manufacture conventional ammunition and toxic chemicals during World War II (Fig. 1), RA has served as the Army's center for missile and rocket programs since 1948 (Baker 1993). The study area is located on

¹CURTIS J. HANSEN – Auburn University Museum of Natural History, Department of Biological Sciences, 101 Rouse Life Sciences Bldg., Auburn, AL 36849 U.S.A. – e-mail: hansecj@auburn.edu



Figure 1. The Redstone Arsenal boundary outlined in green with nine ecologically sensitive areas (ESA) outlined in red, one proposed ESA outlined in blue and lichen collection sites shown by orange dots.

the southern Highland Rim in north Alabama, in the Tennessee Valley physiographic region, and ranges in elevation from approximately 168 m along the Tennessee River, to 375 m on Madkin Mountain (Godwin & Hilton 1995). Most of RA has a substrate of Tuscumbia Limestone except for the mountainous regions which are of Monteagle Limestone with shelves and caps of Hartselle Sandstone on the lower slopes (Godwin & Hilton 1995). There are several cave systems on the property. Mean temperatures range from -0.5°C to 9.4°C in January and from 20°C to 31.6°C in July and mean annual rainfall is 140 cm with March receiving the most precipitation and October the least (Sterling 2013). Forested land is fragmented due to widespread urbanized and non-forested patches dispersed throughout the landscape (Bhuta et al. 2011).

Diverse habitat and plant community types found on RA include wetlands, streams, springs, glades, mountains and limestone bluffs. Bradford Sinks area and Huntsville Spring Branch are primarily standing water wetlands dominated by *Nyssa* and surrounded by floodplain forests of mixed *Carya-Quercus* woods. Jaya Springs, William Springs and Indian Creek are characterized by flowing water and are dominated by mesic, mixed hardwood forests. The dominant community types found on Madkin, Ward and Weeden Mountains are mixed hardwoods of *Carya-Juniperus-Quercus*. Bell Bluff and Lehman's Bluff, located at the south end of the RA, are characterized by steep, exposed bluffs and shelves of limestone above the Tennessee River. These areas are dominated by shrubby and herbaceous species immediately bordered by a *Carya-Juniperus-Quercus* community type (Godwin & Hilton 1995).

Characterizations of inventoried sites. – Brief descriptions of the sites inventoried as part of this study are listed below. Site abbreviations are referenced in the annotated checklist.

Bell Bluff (BB) – Is located at the south end of RA (Fig. 1) and is accessible by foot-trail leading off of Patten Road, SW. The trail leads for 0.5 mi south ending at the Tennessee River and passing through mixed hardwood forests dominated by *Celtis*, and through a glade-like habitat on shallow, somewhat rocky calcareous pavement. Approximately 0.3 mi south on the trail is an east facing slope with large sandstone boulders in mixed *Carya-Quercus* woods. At the Tennessee River, the habitat is dominated by mixed hardwoods, large limestone rocks and ledges and floodplain in a weedy community of *Ligustrum*, *Lonicera* and *Smilax*.

Bobcat Cave (BC) – Is located on the west side of RA and is dominated by open mixed hardwood forests among rocky limestone substrate. The canopy consists primarily of *Carya*, *Celtis*, *Liriodendron* and *Quercus*, in association with forbs such as *Agrimonia*, *Podophyllum*, *Trillium* and *Veronica*.

Bradford Sinks (BS; Fig. 2) – Is located in the southwest region of RA and consists of several large sinkhole ponds of standing water, surrounded by mixed hardwoods dominated by *Carpinus*, *Ilex* and *Quercus* and in association with *Vaccinium*. Bradford Sinks is associated with and a continuation of the Wheeler National Wildlife Refuge, leading from the west, and is periodically flooded by the Tennessee River.

Huntsville Spring Branch (HSB) – Is located on the eastern edge of the RA, south of Martin Road, and is a large wetland area with flowing streams, floodplains and large ponds. Forests are dominated by *Carya*, *Cornus*, *Nyssa* and *Quercus*.

Jaya Springs (JS; Fig. 2) – Is located in the central part of RA, west of Rideout Road and east of Hale Road. Indian Creek flows through this area creating an open marshy habitat. Surrounding forests are a mix of hardwoods, including *Acer*, *Betula*, *Carya*, *Cornus*, *Frangula*, *Liriodendron*, *Nyssa* and *Quercus*. A viney understory of *Berchemia*, *Parthenocissus*, *Toxicodendron* and *Vitis* was also found, growing in damp soil.

Lehman's Bluff (LB; Fig. 3) – Is found in the southeastern portion of RA, northeast from Bell Bluff and along the Tennessee River. This location was primarily found to have many moss-covered limestone boulders throughout the woods and that lead toward shear limestone bluffs above the Tennessee River. The *Carya-Juniperus-Quercus* forest has a diverse understory including, *Cardamine*, *Ilex*, *Ligustrum*, *Myriopteris Pellea*, *Smallanthus*, *Trillium* and *Vaccinium*. This area is also heavily covered with invasive plants including *Lonicera japonica*, *L. maackii* and *Mahonia bealei*.



Figure 2. Selected habitats in the study area. Upper panel, open pond habitat at Bradford Sinks (photo C.J. Hansen). Lower panel, open marshy habitat at Jaya Springs (photo C.J. Hansen).

Madkin Mountain (MM) – Is located in the northern portion of the RA and is adjacent to, and just south of, Weeden Mountain. The mountain is composed of mixed hardwoods, *Juniperus* and rocky limestone boulders except for ledges and caps of sandstone partway up the mountain. Invasive plant species were abundant and included, *Lonicera fragrantissima*, *L. japonica*, *L. maackii*, *Smilax* and *Toxicodendron*. Associated native herbaceous understory included *Agrimonia*, *Cardamine*, *Podophyllum*, *Trillium* and *Viola*. Madkin and Weeden Mountains comprise one ecologically sensitive area at RA.

Ward Mountain (WM) – Is located at the extreme northern border of RA, adjacent to the city of Huntsville. Large limestone ledges and boulders transition from the summit to smaller and fewer rocks as the slope descends. The mixed hardwood forest is dominated by *Acer*, *Carya* and *Quercus* but also included some *Juniperus*.

Weeden Mountain (WEED) – Is located adjacent to, and just north of Madkin Mountain in the northeastern portion of RA. Weeden Mountain also has large boulders of limestone at the summit with mixed *Quercus-Carya-Fraxinus* forests. Down the southern slope are openings of limestone pavement and ledges, areas of open grass and narrow cedar glades surrounded by *Vaccinium*. Approximately 400 m southeast from the summit, at the power line right-of-way, ledges and rocks of sandstone occur in contrast to the limestone. Madkin and Weeden Mountains comprise one ecologically sensitive area.

Williams Spring (WS; Fig. 3) – Is found in the west-central portion of RA and has a small spring head of water emerging from underground. The surrounding hardwood canopy is quite shaded in season and is dominated by *Carya*, *Liquidambar* and *Quercus* with and understory of *Asimina*, *Commelina*, *Impatiens*, *Lindera* and *Packera*.

Field and Herbarium Studies. – Nine ecologically sensitive areas, identified by RA biologists and ecologists, were surveyed for lichens over the course of four collecting trips (8 field days) during 2017. Efforts were made to sample all substrates and habitats at each site. Specimens were collected from substrates using a hammer and chisels or a knife, and placed into paper sacks. The specimens were returned to the Freeman Herbarium (AUA) at the Auburn University Museum of Natural History for processing and identification. Primary sources used for identification included, Brodo (2016), Brodo et al. (2001), Dey (1978), Harris, (1995) and Lendemer et al. (2013) with additional references noted in the list. Morphological examinations and UV light fluorescence tests were performed along with standard spot tests (K, C, P, I) following Brodo et al. (2001). All reported taxa are based on vouchered specimens collected and identified largely by the author and, unless otherwise noted, deposited at the Freeman Herbarium (AUA) at Auburn University. Several duplicate collections were deposited in the herbaria of the New York Botanical Garden (NY) and University of Colorado (COLO) in exchange for identification.

RESULTS AND DISCUSSION

A total of 464 lichen collections yielded 151 identified species belonging to 64 genera. With fewer than 40 lichens documented in Madison County, Alabama, most species reported here from RA represent new county records. The following 12 lichens are also reported new for the state (based on Hansen 2003, Hansen & Dute 2005, Hansen & Lendemer 2008, Hansen et al. 2008): *Caloplaca pollinii*, *Clauzadea chondrodes*, *Enchylium coccophorum*, *Hypotrachyna dentella*, *Lepraria xanthonica*, *Phaeophyscia hirsuta*, *Phaeophyscia leana*, *Physciella chloantha*, *Physconia leucoleiptes*, *Physconia subpallida*, *Punctelia graminicola*, and *Usnea halei*. In addition, three lichens, one each from *Buellia*, *Heterodermia* and *Lecanora*, correspond to species new to science and are currently in press elsewhere in other contributions (J.C. Lendemer, pers. comm.). Though not exhaustive, the current checklist of lichens represents the first systematic lichen survey of nine ecologically sensitive areas on RA and will serve as a baseline for future studies on the base, in Madison County and the surrounding region of northern Alabama.

ANNOTATED CHECKLIST

The checklist presented below is organized alphabetically by genus then species, and the nomenclature largely follows Esslinger (2018) with some deviations according to preference of the author. Site abbreviations correspond to those given in Materials and Methods, collection numbers are those of the



Figure 3. Selected habitats in the study area. Upper panel, limestone rocks and cliff at Lehman's Bluff overlooking the Tennessee River (photo C.J. Hansen). Lower panel, small spring head and hardwood forest at Williams Spring (photo M. Callahan).

author, and unless otherwise indicated vouchers were deposited in the Freeman Herbarium (AUA) at Auburn University. Occasional synonyms and annotations are also included. **Bolded** entries correspond to new state reports for Alabama, an asterisk (*) corresponds to new species that are currently being described, and there is one saprobic fungus, *Phaeocalicium polyporaeum*, designated by a plus sign (+).

- Alyxoria varia* (Pers.) Ertz & Tehler (syn. *Opegrapha varia* Pers.) – MM; 6372.
Anaptychia palmulata (Michx.) Vain. – BB, WEED; 7016, 7076.
Anisomeridium distans (Willey) R.C. Harris – MM; 6391.
Arthonia anglica Coppins – BS; 6253.
Arthonia rubella (Fée) Nyl. – BS, HS; 6246, 6303.
Bacidia schweinitzii (Fr. ex Tuck.) A. Schneider – BC, BS, HA, JS, MM, WEED, WM; 6250, 6280, 6298, 6314, 6364, 6421, 6432, 6793, 6892.
Bagliettoa baldensis (A. Massal.) Vězda – BB, LB, WM; 6289, 6324, 7098.
Bagliettoa caliciseda (DC.) Gueidan & Cl. Roux – BC, LB, MM, WEED, WM; 6404, 6436, 6833, 6835, 6851, 6905, 6912, 6955, 6970.
Bagliettoa marmorea (Scop.) Gueidan & Cl. Roux – MM, WEED; 6398, 6957.
Bathelium carolinianum (Tuck.) R.C. Harris – HS, LB; 6302, 6881, 6884.
Botryolepraria lesdainii (Hue) Canals, Hernández-Mariné, Gómez-Bolea & Llimona – LB, MM; 6406, 6857.
Buellia erubescens Arnold (syn. *B. stillingiana* J. Steiner) – JS, LB, WS; 6270, 6773, 6800, 6875.
Buellia spuria (Schaer.) Anzi – WEED; 6968.
***Buellia sp. nov.** – MM; 6397 (NY, ined., J.C. Lendemer, pers. comm).
***Caloplaca pollinii* (A. Massal.) Jatta** – WM; 6287B (NY, det. J.C. Lendemer). Reported from South Carolina and Tennessee in the southeastern United States (Wetmore 1994). This is the first published report for Alabama.
Candelaria concolor (Dicks.) Stein – BS, LB, WEED, WM; 6256, 6815B, 6878, 6927.
Candelaria fibrosa (Fr.) Müll. Arg. – BB, JS, MM, WEED, WM; 6279, 6287A, 6407, 6767, 6815A, 7008, 7053.
Canoparmelia caroliniana (Nyl.) Elix & Hale – LB; 6880.
Canoparmelia texana (Tuck.) Elix & Hale – BS, JS, WEED, WM; 6261, 6283, 6769, 6936.
Catillaria lenticularis (Ach.) Th. Fr. – BB, LB, WEED; 6317, 6838, 6953B, 7103.
Chrysothrix xanthina (Vain.) Kalb – JS, LB, WM; 6784, 6824, 6876.
Cladonia apodocarpa Robbins – MM; 6369, 6378.
Cladonia caespiticia (Pers.) Flörke – HS, MM, WEED; 6312, 6327, 6345, 6909.
Cladonia coniocraea (Flörke) Sprengel – BB, JS, LB, MM, WEED; 6339, 6344, 6787, 6931, 7062.
Cladonia cristatella Tuck. – WEED; 7021.
Cladonia didyma (Fée) Vain. var. *didyma* – WEED; 6933.
Cladonia petrophila R.C. Harris – BB; 7068.
Cladonia peziziformis (With.) J.R. Laundon – BB, BC, LB, WEED; 6343, 6423, 6837, 6849, 6947, 6961, 7061.
Cladonia polycarpoides Nyl. – WEED; 6962.
Cladonia ramulosa (With.) J.R. Laundon – BS, LB; 6274, 6850.
Cladonia simulata Robbins – BC; 6415 (det. J.C. Lendemer).
Cladonia squamosa Hoffm. – WEED; 6932, 6948.
Cladonia subtenuis (Abbayes) Mattick – WEED; 7019.
***Clauzadea chondrodes* (A. Massal.) Clauzade & Cl. Roux** – LB; 6844
Coccocarpia palmicola (Sprengel) Arv. & D.J. Galloway – BB, MM, WEED; 6355, 6893, 6940, 6973, 6997, 7069.
Collema subflaccidum Degel. – MM, WEED, WM; 6282, 6375, 6926.
Collema texanum Tuck. – LB; 6852.
Crespoa crozalsiana (B. de Lesd. ex Harm.) Lendemer & B.P. Hodkinson – JS; 6760.
Dermatocarpon muhlenbergii (Ach.) Müll. Arg. – BB, LB, MM, WEED, WM; 6293, 6294, 6319, 6380, 6839, 6904, 6967, 6981, 7105.

Enchylium coccophroum (Tuck.) Otálora, P. M. Jørg. & Wedin (syn. *Collema coccophorum* Tuck.) – BB, MM, WEED; 6381 (NY), 6951, 6965 (COLO), 6966, 7010, 7100. Found throughout north Alabama on limestone, this species was reported by Hansen (2003) based only on a distribution map but no vouchered specimen was cited from Alabama.

Endocarpon pallidulum (Nyl.) Nyl. – BB; 7050.

Flavoparmelia baltimorensis (Gyelnik & Förriss) Hale – BB, WEED; 6982, 7005, 7078.

Flavoparmelia caperata (L.) Hale – BS, HS, JS, MM, WEED, WS; 6263, 6307, 6349, 6765, 6810, 6891.

Graphis scripta (L.) Ach. – BC, BS, HS, JS, LB, WEED; 6255, 6299, 6430, 6761, 6885, 7014.

Gyalecta farlowii Tuck. ex Nyl. (syn. *Petractis farlowii* (Tuck. ex Nyl.) Vězda.) – BB, LB, WM; 6295, 6322, 7096.

Gyalolechia flavorubescens (Hudson) Søchting, Frödén & Arup (syn. *Caloplaca flavorubescens* (Hudson) J. R. Laundon) – WEED; 6919.

Gyalolechia flavovirescens (Wulfen) Søchting, Frödén & Arup (syn. *Caloplaca flavovirescens* (Wulfen) Dalla Torre & Sarnth.) – BB, LB, MM, WEED, WM; 6292, 6326, 6399, 6911, 7099.

Heterodermia albicans (Pers.) Swinscow & Krog – BB, HS, LB, MM, WM, WS; 6278, 6297, 6309, 6331, 6363, 6373, 6408, 6801, 6826, 6834, 6859, 7079.

Heterodermia granulifera (Ach.) W.L. Culb. – WEED; 6920.

Heterodermia hypoleuca (Ach.) Trevisan – MM, WEED; 6367, 6939.

Heterodermia obscurata (Nyl.) Trevisan – BB, JS, WEED; 6789, 6902, 6922, 6980, 7066, 7075.

Heterodermia speciosa (Wulfen) Trevisan – MM; 6348, 6379.

***Heterodermia langdoniana ined.** – WEED; 6996 (NY, J.C. Lendemer, pers. comm).

Hyperphyscia syncolla (Tuck. ex Nyl.) Kalb – BB, LB, WS; 6794B, 6811, 6873, 7057.

Hypotrachyna dentella (Hale & Kurok.) Hale – JS; 6791 (det. J.C. Lendemer).

Hypotrachyna livida (Taylor) Hale – BB, BS; 6265, 7048, 7064, 7087.

Hypotrachyna minarum (Vain.) Krog & Swinscow (syn. *Parmelinopsis minarum* (Vain.) Elix & Hale) – MM; 6368, 6410.

Lecanora argentata (Ach.) Malme – LB; 6341.

Lecanora chlarotera Nyl. – WS; 6797A (NY) (det. J.C. Lendemer).

Lecanora hybocarpa (Tuck.) Brodo – MM, WS; 6361, 6796, 6805.

Lecanora louisianae B. de Lesd. – LB; 6860.

Lecanora oreinoides (Körber) Hertel & Rambold – WEED; 6998.

Lecanora pulicaris (Pers.) Ach. – WS; 6806.

Lecanora strobilina (Sprengel) Kieffer – BS, JS; 6248, 6774.

Lecanora subpallens Zahlbr. – BS; 6262, 6798.

***Lecanora markjohnstonii ined.** – WEED; 6994 (NY, J.C. Lendemer, pers. comm.).

Lecidella enteroleucella (Nyl.) Hertel – WEED; 6971 (det. J.C. Lendemer).

Lepra amara (Ach.) Hafellner (syn. *Pertusaria amara* (Ach.) Nyl.) – WEED; 6993.

Lepra pustulata (Brodo & W.L. Culb.) Lendemer & R.C. Harris (syn. *Variolaria pustulata* (Brodo & W.L. Culb.) Lendemer, Hodgkinson & R.C. Harris) – BS, HS, WEED; 6247, 6305, 6897.

Lepraria finkii (Hue) R.C. Harris – BB, LB, MM, WEED; 6321, 6353, 6402, 6840, 7002, 7081, 7106.

Lepraria harrisiana Lendemer – WM; 6825 (det. J.C. Lendemer).

Lepraria normandinoides Lendemer & R.C. Harris – BB, WEED; 6983, 7072.

Lepraria vouauxii (Hue) R. C. Harris – HS; 6308 (det. J.C. Lendemer).

Lepraria xanthonica Lendemer – LB, WM; 6828 (COLO), 6836. Lendemer (2013) stated this taxon is infrequent but widely distributed in eastern North America. This is the first reported collection from Alabama.

Leptogium austroamericanum (Malme) C.W. Dodge – BB, LB, MM, WEED, WM; 6351, 6822, 6842, 6855, 6862, 6903, 6914, 7011, 7108.

Leptogium chloromelum (Ach.) Nyl. – WEED; 6990, 7013.

Leptogium corticola (Taylor) Tuck. – BB, WEED; 6972, 7063.

Leptogium cyanescens (Rabenh.) Körber – BB, BC, BS, HS, JS, LB, WEED, WM; 6258, 6281, 6311, 6315, 6318, 6330, 6425, 6759, 6792, 6987, 7082, 7101.

Myelochroa aurulenta (Tuck.) Elix & Hale – BB, BC, WEED; 6420, 6428, 7009, 7084.

Myelochroa galbina (Ach.) Elix & Hale – JS, WM, WS; 6771, 6782, 6797B, 6821.

Myelochroa obsessa (Ach.) Elix & Hale – BB, WEED; 6988, 7088.

Ochrolechia africana Vain. – HS, LB, MM, WM, WS; 6284, 6304, 6357, 6795, 6872.

Ochrolechia mexicana Vain. – LB; 6334.
Opegrapha vulgata Ach. – MM; 6377.
Parmotrema austrosinense (Zahlbr.) Hale – BS, JS, LB, WEED, WM; 6271, 6286, 6337, 6775, 6942.
Parmotrema hypotropum (Nyl.) Hale – BB, JS; 6780, 6785, 7052.
Parmotrema perforatum (Jacq.) A. Massal. – BB, BS, JS, LB, LS, WM; 6272, 6285, 6338, 6779, 6820, 6871, 7060.
Parmotrema reticulatum (Taylor) M. Choisy – BB, BC, BS, HS, JS, MM, WEED, WM, WS; 6267, 6277, 6310, 6346, 6352, 6418, 6764, 6770, 6788, 6808, 6923, 6944, 6950, 7065.
Parmotrema stuppeum (Taylor) Hale – WEED; 6901.
Parmotrema subisidiosum (Müll. Arg.) Hale – BB; 7089.
Parmotrema submarginale (Michx.) DePriest & B. Hale – LB; 6867.
Parmotrema tinctorum (Delise ex Nyl.) Hale – BB, LB, WEED; 6332, 6879, 6895, 7067.
Peltigera praetextata (Flörke ex Sommerf.) Zopf – WEED; 7001.
Pertusaria epixantha R.C. Harris – BB, BS, HS, LB, WEED, WM; 6251, 6300, 6329 (det. E.A. Tripp), 6823A, 6829, 6918, 7049.
Pertusaria ostiolata Dibben – BC, LB, MM, WEED; 6365, 6426, 6882, 6941, 7015.
Pertusaria paratuberculifera Dibben – BC, MM, WEED; 6370, 6376, 6424, 6896, 6930B.
Pertusaria plittiana Erichsen – BB, WEED; 6978, 7085.
Pertusaria pustulata (Ach.) Duby – LB, WEED; 6336, 6866, 6930A.
Pertusaria subpertusa Brodo – HS; 6306.
Pertusaria tetrathalamia (Fée) Nyl. – WM; 6276.
Pertusaria texana Müll. Arg. – LB, WEED, WM; 6827, 6913.
+*Phaeocalicium polyporaeum* (Nyl.) Tibell – BC; 6434.
Phaeophyscia adiastrum (Essl.) Essl. – BB, BC, JS, LB, WEED; 6320, 6422, 6435, 6439, 6762, 6845, 6906, 6986, 7003 (fertile, det. J.C. Lendemer), 7074, 7091, 7097.
Phaeophyscia ciliata (Hoffm.) Moberg – BB, WS; 6794C, 7046.
***Phaeophyscia hirsuta* (Mereschk.) Essl.** – LB, MM; 6388, 6403, 6877. Known from the Great Smoky Mountains (Lendemer et al. 2013) and locations further north and west (Esslinger 1978), this is the first report of this species from Alabama.
***Phaeophyscia leana* (Tuck.) Essl.** – BS; 6260 (AUA, NY, det. J.C. Lendemer, confirmed by T.L. Esslinger). This new state record is the southernmost known occurrence of this rare species (Hansen & Lendemer in press; Lendemer 2009). It is endemic to the major tributaries in central eastern United States, including the Tennessee River, near where this specimen was found. See also Esslinger 1978.
Phaeophyscia pusilloides (Zahlbr.) Essl. – BB, WM; 6813, 7051.
Phaeophyscia rubropulchra (Degel.) Essl. – BB, BS, HS, MM, WEED, WS; 6252, 6254 (NY), 6313, 6358, 6807, 6899, 7092.
Phlyctis petraea R.C. Harris, Muscavitch, Ladd & Lendemer – BB; 7070.
Phyllopsora corallina (Eschw.) Müll. Arg. – WEED; 6921 (det. J.C. Lendemer).
Physcia americana G. Merr. – JS, LB, MM, WEED; 6409, 6763, 6863, 6883, 6985 (NY), 6989 (NY), 7006.
Physcia millegrana Degel. – JS, LB, MM, WM; 6335, 6414, 6766B, 6816.
Physcia neogaea R.C. Harris – WEED; 6960 (det. J.C. Lendemer).
Physcia pumilior R.C. Harris – JS, LB, WEED; 6333, 6413, 6869, 6777, 6929.
Physcia solediosa (Vain.) Lynge – LB; 6328, 6848, 6865.
Physcia stellaris (L.) Nyl. – WEED, WM; 6288A, 6814, 6819, 7007.
Physcia subtilis Degel. – BB, WEED; 7000, 7090 (fide Esslinger 2017).
***Physciella chloantha* (Ach.) Essl.** – MM, WEED, WS; 6412, 6794A, 6910, 6956, 6999, 7012. The distribution map of this species in Esslinger (1978), as *Physcia luganensis* Mereschk. (but see Esslinger 1986 for discussion), does not include Alabama and no other published reports of this species for the state have been found.
***Physconia leucoleptes* (Tuck.) Essl.** – MM, WEED; 6360, 6371 (det. E.A. Tripp), 6382, 6387, 6938. Though found quite commonly in this region on limestone, this is apparently the first report for the Alabama. See also Esslinger 1994.
***Physconia subpallida* Essl.** – WEED; 6907 (det. T.L. Esslinger). This is the southernmost known occurrence for this species (T. Esslinger, pers. comm.).

Placidium arboreum (Schwein. ex Tuck.) Lendemer (syn. *Dermatocarpon arboreum* (Schwein. ex Tuck.) Fink) – BB, LB, MM, WEED; 6400, 6841, 6856, 6964, 7104.

Placynthium nigrum (Hudson) Gray – WEED; 6952 (det. J.C. Lendemer). It is significant to note that Henssen (1963) reported this species from Lawrence County, Alabama, based on a single collection by Thomas Peters from 1874. Now, 145 years later, this species is confirmed to be extant in Alabama.

Placynthium petersii (Nyl.) Burnham – MM; 6396 (det. J.C. Lendemer).

Porina heterospora (Fink ex J. Hedrick) R.C. Harris – BS; 6259.

Porpidia albocaerulescens (Wulfen) Hertel & Knoph – WEED, WM; 6832, 6976.

Protoblastenia rupestris (Scop.) J. Steiner – WEED; 6954.

Psora pseudorussellii Timdal – MM, WEED; 6395, 6959, 7023.

Punctelia bolliana (Müll. Arg.) Krog – WEED; 6928, 6937, 6946.

Punctelia caseana Lendemer & Hodgkinson – WEED; 6924.

***Punctelia graminicola* (B. de Lesd.) Egan** – WEED; 6995 (det. J.C. Lendemer).

Punctelia missouriensis G. Wilh. & Ladd – BB, LB; 6861, 7093.

Punctelia rudecta (Ach.) Krog – BB, BC, BS, JS, LB, MM, WEED, WS; 6264, 6275, 6354, 6362, 6390, 6416, 6772, 6786, 6804, 6847, 6898, 6925, 6949, 7058.

Pyrenula leucostoma Ach. – BC, HS; 6301, 6433.

Pyrenula pseudobufonia (Rehm) R.C. Harris – BC, BS; 6249, 6429.

Pyrenula punctella (Nyl.) Trevisan – LB; 6858.

Pyxine soorediata (Ach.) Mont. – BB, JS, WEED, WS; 6790, 6803, 6890, 7059, 7080.

Pyxine subcinerea Stirt. – BS, LB, WM, WS; 6257, 6802, 6809, 6812, 6818, 6870.

Ramalina americana Hale – BB, BC, BS, JS, LB; 6268, 6273, 6340, 6417, 6766A, 6817, 6868, 7107.

Ramalina culbersoniorum LaGreca – JS; 6776 (det. J.C. Lendemer).

Rinodina destituta (Nyl.) Zahlbr. – WEED; 6977 (det. J.C. Lendemer).

Sarcogyne regularis Körber – WEED; 6953A, 6969.

Scytinium apalachense (Tuck.) Otálora, P. M. Jørg. & Wedin (syn. *Leptogium apalachense* (Tuck.) Nyl.) – LB; 6853.

Scytinium lichenoides (L.) Otálora, P. M. Jørg. & Wedin (syn. *Leptogium lichenoides* (L.) Zahlbr.) – LB, MM, WEED; 6342, 6386, 6854, 6917.

Trapelia placodioides Coppins & P. James – WEED; 6992.

***Usnea halei* P. Clerc** – BB; 7071 (det. J.C. Lendemer). Reported by Clerc & Herrera-Campos (1997) from Georgia, North Carolina, Tennessee and Virginia, in the southeastern United States, this is the first published report of this species from Alabama.

Usnea strigosa (Ach.) A. Eaton – BB, BC, BS, JS, WS; 6269, 6419, 6427 (NY), 6768, 6783, 6799, 7047.

Usnea subscabrosa Nyl. ex Motyka – WEED; 6894.

Willeya diffractella (Nyl.) Müll. Arg. (syn. *Staurothele diffractella* (Nyl.) Tuck.) – BC, LB, MM, WEED, WM; 6290, 6291, 6323, 6393, 6437, 6830, 6900, 6958.

Xanthoparmelia conspersa (Ehrh. ex Ach.) Hale – WEED; 6974A, 6979.

Xanthoparmelia plittii (Gyelnik) Hale – WEED; 6974B.

Zwackhia viridis (Pers. ex Ach.) Poetsch & Schied. (syn. *Opegrapha viridis* (Ach.) Nyl.) – BC; 6431.

ACKNOWLEDGEMENTS

I am grateful to James Lendemer (NY), Erin Tripp (COLO) and Ted Esslinger (NDA) for help with several identifications. I thank Christine Easterwood at the Redstone Arsenal for facilitating access to the base and collecting sites. I thank Michael Barbour (AZ Natural Heritage Program) for producing the map, Melissa Callahan (Auburn University Museum of Natural History) for the photo of Williams Spring and two anonymous reviewers whose useful comments improved this paper. This is contribution no. 876 of the Auburn University Museum of Natural History.

LITERATURE CITED

- Baker, M.E. 1993. *Redstone Arsenal: Yesterday and Today*. U.S. Government Printing Office, 1993-758-626/80050. Redstone Arsenal, Alabama. 16 pp.
- Bhuta, A.R., J.L. Hart and R.M. Schneider. 2011. Forest vegetation and development patterns in secondary stands on the Alabama Highland Rim: an examination of the largest landholding in the region. *Natural Areas Journal* 31: 256–269.
- Brodo, I.M. 2016. *Keys to lichens of North America*. Yale University Press, New Haven and London. 427 pp.

- Brodo, I.M., S.D. Sharnoff and S. Sharnoff. 2001. *Lichens of North America*. Yale University Press, New Haven and London. 795 pp.
- Clerc, P. and M.A. Herrera-Campos. 1997. Saxicolous species of *Usnea* subgenus *Usnea* (Lichenized Ascomycetes) in North America. *The Bryologist* 100: 281–301.
- Consortium of North American Lichen Herbaria (CNALH). 2017. <http://lichenportal.org/portal/index.php>. Accessed on 13 September 2017.
- Dey, J.P. 1978. Fruticose and foliose lichens of the high-mountain areas of the Southern Appalachians. *The Bryologist* 81: 1–93.
- Esslinger, T.L. 1978. Studies in the lichen family Physciaceae. II. The genus *Phaeophyscia* in North America. *Mycotaxon* 7: 283–320.
- Esslinger, T.L. 1986. Studies in the lichen family Physciaceae. VII. The new genus *Physciella*. *Mycologia* 78: 92–97.
- Esslinger, T.L. 1994. New species and new combinations in the lichen genus *Physconia* in North America. *Mycotaxon* 51: 91–100.
- Esslinger, T.L. 2017. A new circumscription for the common and widespread North American species *Physcia subtilis*, and description of a new species, *P. thomsoniana*. *Opuscula Philolichenum* 16: 139–152.
- Esslinger, T.L. 2018. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada, version 22. *Opuscula Philolichenum* 17: 6–268.
- Godwin, J.C. and J.L. Hilton. 1995. *Natural Heritage Inventory of Redstone Arsenal: Federally Listed Endangered, Threatened, Candidate and State-Listed Species*. Final report submitted to Environmental Management Office, AMSMI-RA-EH-EQ, U.S. Army Missile Command, Redstone Arsenal, Alabama 35898-5340. Alabama Natural Heritage Program, Montgomery, AL. 106 pp.
- Hansen, C.J. 2003. A catalog and brief history of the lichen flora of Alabama. *Evansia* 20: 59–101.
- Hansen, C.J. and R.R. Dute. 2005. Additions to the lichen flora of Alabama. I. *Evansia* 22: 110–117.
- Hansen, C.J. and J.C. Lendemer. 2008. A checklist of lichens collected during the 2007 Blomquist Foray in southern Alabama, U.S.A. *Evansia* 25: 26–33.
- Hansen, C.J. and J.C. Lendemer. *In press*. The first report of the rare and endangered species *Phaeophyscia leana* (Physciaceae) from Alabama. *Evansia*.
- Hansen, C.J., J.C. Lendemer and S. Beeching. 2008. Contributions to the lichen flora of Alabama: recent collections from four counties. *Opuscula Philolichenum* 5: 43–48.
- Harris, R.C. 1995. *More Florida Lichens, Including the 10¢ Tour of the Pyrenolichens*. Published by the author, New York. 192 pp.
- Henssen, A. 1963. The North American species of *Placynthium*. *Canadian Journal of Botany* 41: 1687–1724.
- Lendemer, J.C. 2009. Another record of the rare and endangered species *Phaeophyscia leana*. *Evansia* 26: 142–143.
- Lendemer, J.C. 2013. A monograph of the crustose members of the genus *Lepraria* Ach. s. str. (Stereocaulaceae, Lichenized Ascomycetes) in North America north of Mexico. *Opuscula Philolichenum* 11: 27–141.
- Lendemer, J.C., R.C. Harris and E.A. Tripp. 2013. The lichens and allied fungi of Great Smoky Mountains National Park. *Memoirs of the New York Botanical Garden* 104: 1–152.
- Sterling, R.S. 2013. *Response of Vegetation and Avian Communities to Retention Harvests in a Mixed-pine Forest in Northern Alabama*. Master's Thesis, Auburn University.
- Wetmore, C.M. 1994. The lichen genus *Caloplaca* in North and Central America with brown or black apothecia. *Mycologia* 86: 813–838.

New and Noteworthy Reports of Colorado Lichens and Lichen Allies, 1: *Phaeocalicium polyporaeum*

ERIN A. TRIPP^{1*}, RYAN AGABANI² AND R. TROY McMULLIN³

ABSTRACT. – *Phaeocalicium polyporaeum* is reported from Colorado for the first time, based on a specimen collected by the first two authors, in 2018, from the Sangre de Cristo Mountains. This individual was growing on *Trichaptum abietinum* and furthermore represents the first record of *P. polyporaeum* in western North America in over 30 years. We provide discussion on its geographical range as presently understood, along with other notes of interest.

KEYWORDS. – biogeography, Colorado, distribution, lichen, rediscovery, record, report, range extension.

INTRODUCTION

Originally described from Hungary, *Phaeocalicium polyporaeum* (Nyl.) Tibell (Mycocaliciaceae) is an inconspicuous, saprophytic calicioid (stubble) fungus that inhabits the fruiting bodies of *Trametes versicolor* (L.) Lloyd (nearly cosmopolitan including throughout eastern and western North America; Carlson et al. 2014), *Trichaptum abietinum* (Pers.) Ryvarden (circumboreal northern hemisphere; Ryvarden & Gilbertson 1993), *T. bifforme* (Fr.) Ryvarden (tropical, temperate, and boreal habitats throughout North America and on other continents; MycoPortal 2018), and potentially other as yet undocumented fungal substrates. It is typically considered to be non-lichenized (Hutchinson 1987), but its consistent affiliation with green algal-laden upper surfaces of these macrofungi (see Selva 1988) leaves open the possibility of as yet undocumented nutrient transfer among two or more of these disparate organisms.

Phaeocalicium polyporaeum is relatively common throughout the eastern North American temperate hardwood forests (and similar biomes on other continents, e.g., Spier et al. 2008), closely tracking the distribution of its host fungi throughout this region (Hutchinson 1987; Selva 1988; LaGreca et al. 2005; Keller et al. 2007; McMullin 2012; McMullin & Lendemer 2013, 2016; Lendemer et al. 2016; Tripp & Lendemer, in press). In the area, it is probably more common than currently understood, owing to its small size and inconspicuousness to all but the closest observers. *Phaeocalicium polyporaeum* is essentially unknown from western North America except for a single collection made over 30 years ago in Saguaro National Monument near Tucson, Arizona (*Wetmore 55043*, MIN!; also see Tibell & Ryan 2004).

During a recent fieldtrip, as part of an undergraduate and graduate class taught at The University of Colorado, student participants explored local, lower montane slopes of the Sangre de Cristo Mountains for their lichen biodiversity. One fieldtrip participant and co-author of this study (RA), having recalled photographs of this stubble fungus in eastern North America from class lectures, discovered a population of *Trichaptum abietinum* that was densely colonized by *Phaeocalicium polyporaeum*. The present report represents its first known occurrence in Colorado and first collection in western North America since 1986.

¹ERIN A. TRIPP – University of Colorado, Department of Ecology & Evolutionary Biology, UCB 334, Boulder, CO 80309, U.S.A

*AUTHOR FOR CORRESPONDENCE – erin.tripp@colorado.edu

²RYAN AGABANI – University of Colorado, Museum of Natural History, UCB 350, Boulder, CO 80309, U.S.A

³R. TROY McMULLIN – Canadian Museum of Nature, Research and Collections, PO Box 3443 Stn “D”, Ottawa, ON, K1P 6P4, Canada

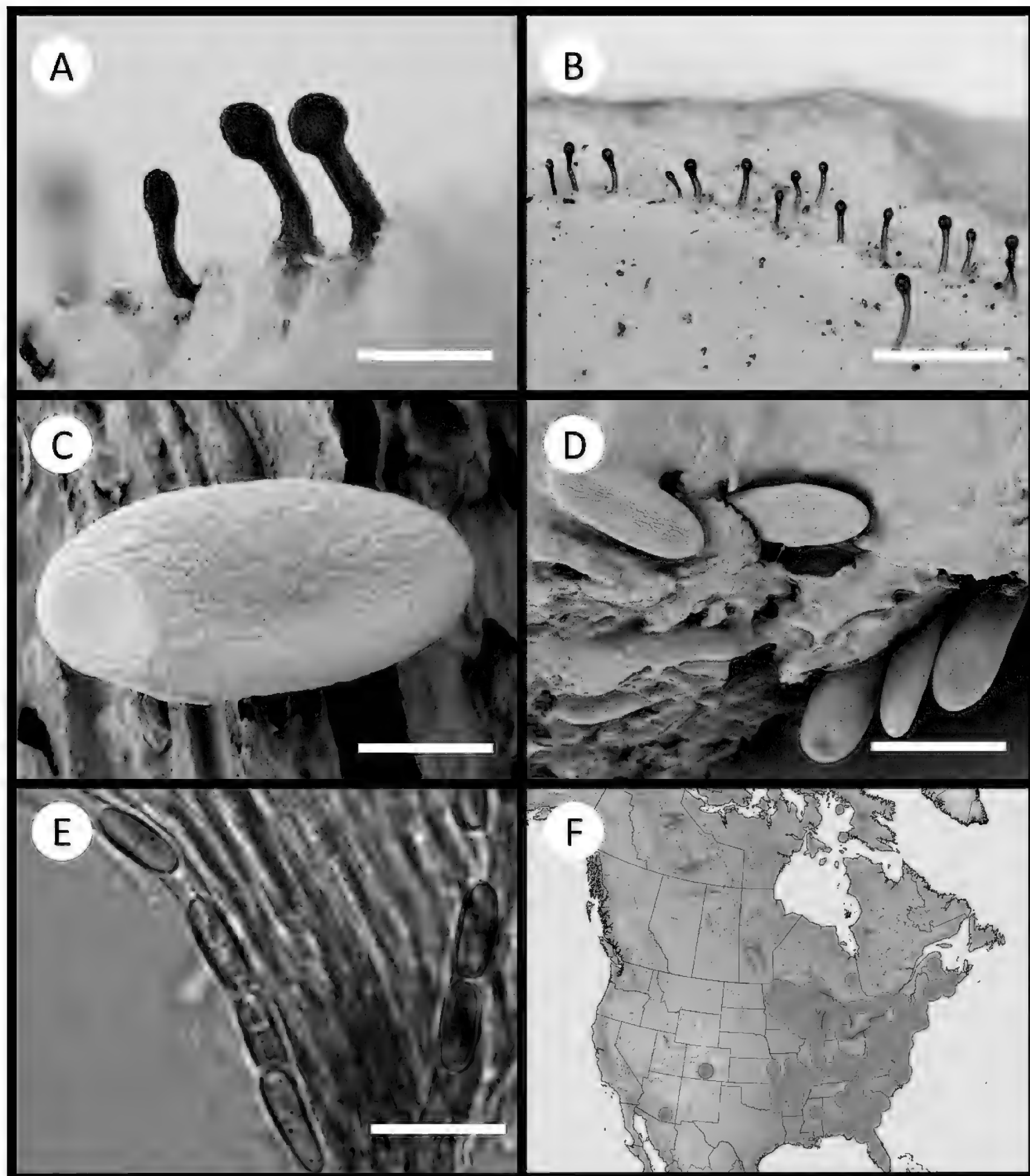


Figure 1. Morphology and geographic distribution of *Phaeocalicium polyporaeum* (A-E from Tripp & Agabani 9003). A and B, apothecia of *P. polyporaeum* on *Trichaptum abietinum*. C and D, scanning electron micrograph of ascospores E, ascospores viewed in a water mount. F, distribution of *P. polyporaeum* in North America based on records in CNALH, blue dot = new record, red dots = previous records. Scales = 0.85 mm in A, 1.2 mm in B, 13 μ m in E, 10 μ m in D, 3 μ m in C.

MATERIALS AND METHODS

The present study is based on herbarium materials housed at The University of Colorado Herbarium (COLO), The Canadian Museum of Nature (CANL), The New York Botanical Garden (NY), and supplemented by specimen records available on the Consortium of North American Lichen Herbaria (CNALH; www.lichenportal.org).

Images of the apothecia were captured with a Leica DVM6 digital microscope (Fig. 1A and 1B). Using a FEI Apreo scanning electron microscope (SEM), images of the ascospores were captured at a 5 mm beam distance using the T1(A) detector (Fig. 1C and 1D). Specimens were prepared for SEM using a stereomicroscope to remove ascomata and placed onto an aluminum stub using double-sided carbon tape. The stub was placed in a Denton Vacuum Desk II sputter coater for 15 seconds, which deposited a thin mixture of gold and palladium onto the stub before imaging. Using a Leica DMR compound microscope, images of the ascospores were also captured in water on glass slides under oil immersion at 1000x magnification (Fig. 1E). The map was produced with SimpleMappr (Fig. 1F; Shorthouse 2010).

RESULTS AND DISCUSSION

Phaeocalicium polyporaeum was treated by Hutchison (1987), who provided a full length morphological description as well as micrographs. Hutchison (1987) described its preferred substrate, *Trichaptum biforme* (= *Hirschioporus pargamensis* (Fr.) Bondartsev & Singer) as a common shelf fungus of eastern North America and this proposed association between fungus, substrate, and calicioid fungus has been widely confirmed in numerous other lichenological studies of eastern North America (Hutchison 1987; Selva 1988; LaGreca et al. 2005; Keller et al. 2007; McMullin 2012; McMullin & Lendemer 2013, 2016; Lendemer et al. 2016; Tripp & Lendemer 2019). However, *P. polyporaeum* has also been reported on *Trichaptum abietinum*, albeit much more rarely (Selva 2014). Whereas *T. biforme* grows on hardwood trees, *T. abietinum* occurs on conifers (Selva 2014). In western North America, both species occur, but the latter is more common (Ryvarden 1978). In this study, we found *P. polyporaeum* on *T. abietinum*, the latter growing on a decaying conifer presumed to be *Pseudotsuga menziesii* (Mirb.) Franco. However, definitive host tree identification was precluded owing to stage of decay,

The population reported in this study derived from lower montane habitat on the eastern slopes of the Sangre de Cristo Mountains, in dense, coniferous forest dominated by Douglas-fir (see below for a complete voucher citation). Its likely occurrence on Douglas-fir mirrors that of the 1986 record of this species in Arizona, which was also collected on a snag of Douglas-fir. Fieldwork in Colorado by the first author over the prior four years has resulted in observation of ample populations of the host fungus *Trichaptum abietinum* throughout Colorado, and in particular the Front Range Mountains. However, *Phaeocalicium polyporaeum* was not observed on any of these fungi until the present discovery.

Morphologically, *Phaeocalicium polyporaeum* is distinguished from other stubble fungi by its stalked apothecia without mazedia, and relatively long (9.0–16 x 3.0–4.5 µm), pale brown, ellipsoidal, 1-septate spores (Tibell 1975; Selva 2014). Another stubble species, *Chaenotheca balsamconensis*, J.L. Allen & McMullin commonly occurs on *Trichaptum abietinum*, which is its only known substrate, but it is easily distinguished by brown mazedia with single-celled, spherical spores (Allen & McMullin 2015).

The discovery of *Phaeocalicium polyporaeum* in Colorado is likely a reflection of the paucity of data on calicioid lichens and fungi in central and western North America. We expect that additional field work in Colorado targeting this overlooked group will yield more species of interest.

Voucher for Colorado record. – **U.S.A. COLORADO.** CUSTER CO.: Sangre de Cristo Mountains, San Isabel National Forest, Rainbow Trail ca. 3.2 km N of Alvarado Campground and ca. 2.4 km S of intersection with Goodwin Lake Trail, in vicinity of a small drainage that crosses the trail, lower montane, deeply shaded forest dominated by *Pseudotsuga menziesii*, 38.0882° -105.5864°, 3056 m, 11.vi.2018, fungicolous on *Trichaptum abietinum* on dead conifer, E. Tripp et al. 9003 (CANL!, COLO!).

Additional specimens examined. – **CANADA. NOVA SCOTIA.** HALIFAX CO.: Halifax, Point Pleasant Park, on Serpentine Rd. between Cambridge Dr. and Tower Hill Rd., coastal mixed-wood Acadian forest, 44.6220° -63.5721°, 24.vii.2011, fungicolous on *Trichaptum biforme*, R.T. McMullin 7098 (CANL!); Upper Tantallon, Old Annapolis Road Nature Reserve, along Old Annapolis Road Hiking Trail, ca. 720 m from the trailhead on Hiking Trail Road, ca. 30 m S of the trail, old-growth conifer dominated forest, tree cover primarily comprised of *Picea rubens* and *Tsuga canadensis*, with smaller amounts of *Abies balsamea*, *Acer rubrum*, *A. saccharum* and *Betula alleghaniensis*, 44.7511° -63.9426°, 25.vi.2017, fungicolous on *Trichaptum biforme*, R.T. McMullin 17366 (CANL!). **QUEENS CO.:** Kejimikujik National Park and National Historic Site, ca. 100 m W of Eel Weir Rd. and ca. 330 m E of Mill Bay, ca. 700 m S of junction with Kejimikujik Main Parkway, mature mixed-wood Acadian forest, tree cover dominated by

Acer rubrum, *Pinus strobus*, and *Quercus rubra*, 44.3770° -65.1995°, 1.xi.2011, fungicolous on *Trichaptum biforme*, R.T. McMullin 8019 (CANL!). Kejimikujik National Park and National Historic Site, ca. 780 m E of the trail at the end of Eel Weir Rd., ca. 850 m after the junction to Puzzle Lake, S of Square Camp Brook, mature mixed wood forest dominated by *Acer rubrum*, *Pinus strobus* and *Quercus rubra*, 44.3108° -65.2069°, 1.xi.2011, fungicolous on *Trichaptum biforme*, R.T. McMullin 8023 (CANL!).

ONTARIO. GREY CO.: Owen Sound, Inglis Falls Conservation Area, ca. 700 m N of Inglis Falls along the Bruce Trail, ca. 190 m E of trail, mature second-growth deciduous forest with low stem density and high canopy closure, tree cover dominated by *Acer saccharum* and *Fraxinus* sp. with some *Fagus grandifolia*, *Ostrya virginiana* and *Tilia Americana*, 44.5311° -80.9306°, 20.ix.2015, fungicolous on *Trichaptum biforme*, R.T. McMullin et al. 6382 (OAC!), R.T. McMullin et al. 6383 (OAC!). HALTON CO.: Speyside, Speyside Resource Management Area, ca. 100 m from trail head on 15 Side Rd., second-growth mixed-wood deciduous and conifer forest, 43.5771° -79.9760°, 24.vii.2011, fungicolous on *Trichaptum biforme*, R.T. McMullin 7941 (OAC!), R.T. McMullin 7944 (OAC!). KAWARTHA LAKES DIVISION: Uphill, Carden Alvar Natural Area, Ellen Larsen's personal property W side of Hwy 35 (Victoria Rd.) and ca. 800 m N of Alvar Rd., ca. 200 m SW from house, mature mixed-wood deciduous dominated forest, 44.7056° -78.9942°, 1.v.2015, fungicolous on *Trichaptum biforme*, R.T. McMullin 18250 (CANL!); Uphill, Carden Alvar Natural Area, alongside MacKenzie Rd. S of Monck Rd., Head River falls at MacKenzie Rd. on the N side along the river right-of-way, exposed non-calcareous rock with scattered deciduous trees, 44.7285° -79.0707°, 1.v.2015, fungicolous on *Trichaptum biforme*, R.T. McMullin 18348 (CANL!); Uphill, Carden Alvar Natural Area, Starr Property, ca. 100 m S of Hwy 45 (Monck Rd.), ca. 180 m W of Turner Rd. junction, mature mixed-wood forest with conifer and deciduous patches throughout along the Head River, 44.7241° -79.0509°, 27.xi.2015, fungicolous on *Trichaptum biforme*, R.T. McMullin 18430 (CANL!). NIAGARA CO.: Niagara, ca. 750 m W of Tremont Dr. along the Bruce Trail, low stem density old-growth deciduous mixed-wood forest bordering Hwy 406, tree cover dominated by *Acer* sp., *Fagus* sp., *Fraxinus* sp., *Ostrya* sp. and *Quercus* sp., 43.1284° -79.2338°, 6.vi.2015, fungicolous on *Trichaptum biforme*, R.T. McMullin et al. 6215 (OAC!); Rock Way Conservation Area, ca. 260 m N along Rockway Side Trail from the Bruce Trail junction, ca. 100 m E of trail, on the escarpment, low stem density old-growth deciduous mixed-wood forest, tree cover dominated by *Acer* sp., *Fagus* sp., *Fraxinus* sp., *Ostrya* sp. and *Tsuga* sp., 43.1143° -79.3178°, 7.vi.2015, fungicolous on *Trichaptum biforme*, R.T. McMullin et al. 6255 (OAC!), R.T. McMullin et al. 6256 (OAC!). SIMCOE CO.: Copeland Forest Resources Management Area, ca. 120 m W of 5 Line N, 2.6 km S of Ingram Rd., young forest with a few old trees, rock wall and tree wall, tree cover dominated by *Acer saccharum*, *Betula papyrifera* and *Pinus sylvestris*, 44.5769° -79.6592°, 17.ix.2011, fungicolous on *Trichaptum biforme*, R.T. McMullin 8064 (OAC!); Copeland Forest Resources Management Area, ca. 670 m W of 5 Line N, 2.2 km S of Ingram Rd., moist valley, mature second-growth trees around small pond, exposed sandy soil, tree cover dominated by *Betula alleghaniensis*, *B. papyrifera*, *Fagus grandifolia* and *Tsuga canadensis*, 44.5792° -79.6683°, 4.x.2011, fungicolous on *Trichaptum biforme*, R.T. McMullin 8066 (OAC!); Copeland Forest Resources Management Area, ca. 900 m W of 5 Line N at S edge of the management area, mature and dry second-growth deciduous forest, tree cover dominated by *Acer saccharum*, *Fagus grandifolia* and *Fraxinus americana*, 44.5683° -79.6606°, 17.ix.2011, fungicolous on *Trichaptum biforme*, R.T. McMullin 8085 (OAC!); Copeland Forest Resources Management Area, ca. 900 m E of the NW parking area along hiking trail S of rail line, mature second growth forest along pond, tree cover dominated by *Acer rubrum*, *Acer saccharum*, *Fagus grandifolia*, *Thuja occidentalis* and *Tsuga canadensis*, 44.5803° -79.6875°, 15.ix.2011, fungicolous on *Trichaptum biforme*, R.T. McMullin 8090 (OAC!), R.T. McMullin 8102 (OAC!); Copeland Forest Resources Management Area, ca. 1 km Ss of Ingram Rd. on 5 Line N, mature second-growth mixed woods along river, tree cover dominated by *Abies balsamea*, *Acer saccharum*, *Betula alleghaniensis*, *B. papyrifera*, *Thuja occidentalis*, *Tilia americana* and *Tsuga canadensis*, 44.5892° -79.6678°, 16.ix.2011, fungicolous on *Trichaptum biforme*, R.T. McMullin 8098 (OAC!); Awenda Provincial Park, Deer Campground, ca. 110 m W of end of campground road, ca. 30 m N of road, second-growth deciduous forest, tree cover dominated by *Acer saccharum*, *Fraxinus americana* and *Quercus rubra*, 44.8357° -80.0166°, 3.vi.2013, fungicolous on *Trichaptum biforme*, R.T. McMullin 13094 (OAC!); Awenda Provincial Park, E shore of Macey Lake, boreal bog habitat with scattered snags, tree cover dominated by *Larix laricina* and *Picea mariana*, 44.8151° -80.0032°, 20.viii.2013, fungicolous on *Trichaptum biforme*, R.T. McMullin 13130 (CANL!); Awenda Provincial Park, W shore of Kettle's Lake, ca. 190 m S of trail to water's edge, second-growth mixed wood forest, tree cover dominated by *Acer saccharum*, *Betula alleghaniensis*, *Picea*, *Pinus strobus* and *Thuja occidentalis*, 44.8439° -79.9825°, 4.vi.2013, fungicolous on

Trichaptum biforme, R.T. McMullin 13322 (CANL!). UNORGANIZED NORTH COCHRANE DISTRICT: Potter Township, Iroquois Falls Forest North, on unnamed road ca. 430 m S of the intersection that is E of the road that accesses Zinger Lake in Little Abitibi Provincial Park, ca. 60 m due W of the road, tree cover dominated by *Abies balsamea*, *Betula papyrifera*, *Picea mariana* and *Pinus banksiana*, 49.3957° -80.7310°, 14.viii.2008, fungicolous on *Trichaptum biforme*, R.T. McMullin 11027 (OAC!); Tweed Township, Iroquois Falls Forest North, at the intersection of Hwy 652 and unnamed road W of Baker Lake, tree cover dominated by *Picea mariana* and *Populus tremuloides*, 49.4636°, -80.4203°, 4.viii.2008, fungicolous on *Trichaptum biforme*, R.T. McMullin 10629 (OAC!). UNORGANIZED THUNDER BAY DISTRICT: Spruce River Forest, ca. 65.3 km N of Hwy 17 on the unnamed road W of Upsala, E side of South Allely Lake, tree cover dominated by *Pinus banksiana* and *Populus tremuloides*, 49.5623° -90.3790°, 5.viii.2009, fungicolous on *Trichaptum biforme*, R.T. McMullin 11754 (OAC!). WELLINGTON CO.: Guelph, University of Guelph, Arboretum, Victoria Woods, well developed second growth forest, 43.5355° -80.2181°, 19.iii.2010, fungicolous on *Trichaptum biforme*, R.T. McMullin 11806 (OAC!); Guelph, Ignatius Jesuit Centre, North Star Trail, ca. 350 m from trail start in clockwise direction, mature treed wetland, *Acer* dominated, 43.5715° -80.3017°, 7.xii.2015, fungicolous on *Trichaptum biforme*, R.T. McMullin 17008 (CANL!). YORK CO.: Vaughan, Nevada Park, trail W of Hunterwood Chase, ca. 100 m NW along branch off of loop trail, mature mixed-wood forest, 43.8850° -79.5029°, 14.vi.2015, fungicolous on *Trichaptum biforme*, R.T. McMullin 15650 (OAC!). **PRINCE EDWARD ISLAND.** KINGS CO.: Dromore, Dromore Wildlife Management Area, ca. 250 m N of Campbell Rd. along first trail to the E of Pisquid River, mixed wood, second-growth forest, conifer dominated with *Abies balsamea*, *Acer rubrum* and *Picea*, 46.3084° -62.8299°, 7.x.2014, fungicolous on *Trichaptum biforme*, R.T. McMullin 14875 (OAC!); Mount Hope, Forest Hill Wilderness Management Area, ca. 1300 m E of Cumberland Rd. on the Forest Hill Hiking Trail, ca. 300 m N on trail that bisects Forest Hill Hiking Trail, mature mixed wood forest dominated by *Acer rubrum*, 46.3566° -62.5102°, 6.x.2014, fungicolous on *Trichaptum biforme*, R.T. McMullin 14754 (OAC!). **U.S.A. ARIZONA.** PIMA CO.: Saguaro National Monument, Rincón Section, Italian Spring, 32.2283° -110.5411°, 21.v.1986, fungicolous on douglas fir snag, *C. Wetmore* 55043 (MIN!). **GEORGIA.** MCINTOSH CO.: Sapelo Island, Sapelo Island Wildlife Management Area, Lighthouse Point, mesic maritime scrub, tree cover dominated by *Celtis laevigata*, *Juniperus virginiana*, *Melia azedarach*, *Sideroxylon tenax* and *Xanthoxylem clava-herbulis*, 31.3917°, -81.2859°, 26.iii.2013, fungicolous on *Trichaptum biforme*, R.T. McMullin 12160 et al. (OAC!); Sapelo Island, Sapelo Island Wildlife Management Area, West Perimeter Road/Airport Rd., ca. 150 m S of northernmost intersection of Airport Rd., tree cover dominated by *Liquidambar styraciflua*, *Magnolia grandiflora*, *Pinus taeda*, *Prunus serotina*, *Quercus virginiana* and *Q. hemisphaerica*, 31.4560° -81.2699°, 26.iii.2013, fungicolous on *Trichaptum biforme*, R.T. McMullin et al. 12188 (OAC!). **MICHIGAN:** MACKINAC CO.: Hiawatha National Forest, vicinity of East Lake Borrow Pit, ca. 14.3 km N of MI-123 along East Lake Rd., ca. 290 m due W of intersection of Jersey Rd. and East Lake Rd., ca. 70 m due S of USFS 3129, dolomite borrow pit with adjacent mixed hardwood forest, tree cover dominated by *Acer*, *Betula*, *Fagus*. and *Fraxinus* sp., 46.1117° -84.7928°, 21.v.2015, fungicolous on *Trichaptum biforme*, R.T. et al. McMullin 16245(CANL!). **NORTH CAROLINA.** DARE CO.: Alligator River National Wildlife Refuge, Brier Hall Rd. ca. 400 m – 800 m S of junction with Mallard Rd., ca. 400 m N of US64, tree cover dominated by *Ilex opaca*, *Acer*, *Liquidambar*, *Nyssa*, *Persea*, and *Pinus*, 35.8828° -75.9375°, 21.iii.2014, fungicolous on *Trichaptum biforme*, R.T. et al. McMullin 13524 (OAC!). HAYWOOD CO.: Great Smoky Mountains National Park, McKee Branch Trail, ca. 1.32 km along the trail W of the junction with Cataloochie Divide Trail, mature mixed-wood forest, deciduous dominated in protected river valley, 35.5849° -83.0867°, 25.x.2017, fungicolous on *Trichaptum biforme*, R.T. McMullin 19055 & J.C. Lendemer (NY!). HYDE CO.: Alligator River National Wildlife Refuge, Chip Rd. ca. 3.2 km SW of junction with Whipping Creek Rd., pocosin tree cover dominated by *Gordonia* sp. and *Pinus* sp., 35.6444° -75.9783°, 23.iii.2014, fungicolous on *Trichaptum biforme*, R.T. McMullin et al. 13657 (OAC!). SWAIN CO.: Great Smoky Mountains National Park, Lakeshore Trail, ca. 260 m along trail S of junction with Cemetery Access Trail, mature mixed-wood forest, deciduous dominated with scattered conifers, 35.4670° -83.5586°, 29.x.2017, fungicolous on *Trichaptum biforme*, R.T. McMullin 19124 & J.C. Lendemer (NY!).

ACKNOWLEDGEMENTS

We thank the US Forest Service for permits to collect and study lichens in Region 2, in particular, Steve Olson Tyler Johnson, and Jim Gerleman. We are grateful to the University of Colorado's Faculty Teaching Excellence

Program for course funding to design then teach *The Lichen Biome*, Department of Ecology and Evolutionary Biology [EBIO4560/5560], which enabled this new discovery. We thank Carly Anderson Stewart and Alisha Quandt for assistance in identifying Colorado *Trichaptum*. We thank James Lendemer for co-designing and co-teaching The Lichen Biome course with ET. We also thank Niels van Miltenburg for assistance with compound and scanning electron microscope images. Finally, we thank Frank Bungartz and James Lendemer for comments that improved this manuscript. ET was supported by a Dimensions of Biodiversity grant from the US National Science Foundation (Award #154229).

LITERATURE CITED

- Allen, J.A. and R.T. McMullin. 2015. *Chaenotheca balsamconensis*, a new calicioid lichen on *Trichaptum abietinum* from eastern North America that is benefiting from widespread conifer fatalities. *The Bryologist* 118: 54–58.
- Carlson, A., A. Justo and D.S. Hibbett. 2014. Species delimitation in *Trametes*: a comparison of ITS, RPB1, RPB2 and TEF1 gene phylogenies. *Mycologia* 106: 735–745.
- Hutchison, L.J. 1987. Studies on *Phaeocalicium polyporaeum* in North America. *Mycologia* 79: 786–789.
- Keller, H.W., J.S. Ely, H.T. Lumbsch and S.B. Selva. 2007. Great Smoky Mountains National Park's first lichen bioquest. *Southeastern Naturalist* 1: 89–98.
- LaGreca, S., E. Lay, D. Greene, E. Kneiper and M. Lincoln. 2005. The lichens and bryophytes of Boston Harbor Islands. *Northeastern Naturalist* 12: 76–98.
- Lendemer, J.C., R.C. Harris and A.M. Ruiz. 2016. A review of the lichens of the Dare Regional biodiversity hotspot in the mid-Atlantic coastal plain of North Carolina, eastern North America. *Castanea* 81: 1–77.
- McMullin, R.T. 2012. New and interesting lichens to Kejimikujik National Park and National Historic Site, Nova Scotia, Canada. *Opuscula Philolichenum* 11: 52–59.
- McMullin, R.T. and J.C. Lendemer. 2013. Lichen biodiversity and conservation status in the Copeland Forest Resources Management Area: A lichen-rich second-growth forest in southern Ontario. *Canadian Field-Naturalist* 127: 240–254.
- McMullin, R.T. and J.C. Lendemer. 2016. Lichens and Allied Fungi of Awenda Provincial Park, Ontario: Diversity and Conservation Status. *American Midland Naturalist* 176: 1–19.
- MycoPortal. 2018. <http://mycoportal.org/portal/index.pho>. Accessed on 24 September 2018.
- Ryvarden, L. 1978. *The Polyporaceae of north Europe*. Fungiflora, Oslo. 507 pp.
- Ryvarden, L. and R.L. Gilbertson. 1993. *European Polypores*. Fungiflora, Oslo. 636 pp.
- Selva, S.B. 1988. The Caliciales of northern Maine. *The Bryologist* 91: 2–17.
- Selva, S.B. 2014. The calicioid lichens and fungi of the Acadian Forest ecoregion of northeastern North America, II. The rest of the story. *The Bryologist* 117: 336–367.
- Shorthouse, D.P. 2010. SimpleMappr, an online tool to produce publication-quality point maps. <http://www.simplemappr.net>. (accessed: July 2018).
- Spier, L., K. van Dort, and Ö. Fritz. 2008. A contribute to the lichen mycota of old beech forests in Bulgaria. *Mycologia Balcanica* 5: 141–146.
- Tibell, L. 1975. The Caliciales of boreal North America. *Symbolae Botanicae Upsaliensis* 21: 1–128.
- Tibell, L. and B.D. Ryan. 2004. *Phaeocalicium*. In: Nash III, T.H., B.D. Ryan, P. Diederich, C. Gries, and F. Bungartz (eds.): *Lichen Flora of the Greater Sonoran Desert Region, Volume 2*. Lichens Unlimited, Arizona State University, Tempe, Arizona, pp. 399–401.
- Tripp, E.A. and J.C. Lendemer. In Press. *Field Guide to the Lichens of Great Smoky Mountains National Park*. University of Tennessee Press, Knoxville.

Contributions to the knowledge of lichenicolous fungi on *Thamnolia*

MIKHAIL P. ZHURBENKO¹ AND YOSHIHITO OHMURA²

ABSTRACT. – *Capronia thamnoliae*, *Cercidospora thamnoliae* and *Cercidospora thamnoliicola* are reported new to Japan; *Endococcus thamnoliae* new to Papua New Guinea; *Merismatium thamnoliicola* new to Norway; *Polycoccum vermicularium* new to Argentina, Australia, Colombia, Japan, Nepal and Papua New Guinea; *Sphaerellothecium thamnoliae* var. *taiyriticum* new to Nepal; *S. thamnoliae* var. *thamnoliae* new to Australia, Falkland Islands, Japan and Papua New Guinea; *Sphaeropezia santessonii* new to Japan; *Stigmidium frigidum* new to Japan; *Thamnogalla crombiei* new to Australia, Bhutan, India, Japan, Nepal, North Korea and Papua New Guinea. *Cornutispora ciliata* is newly reported from *Thamnolia*. Material of *Polycoccum vermicularium* is shown to be morphologically heterogeneous.

KEYWORDS. – Biodiversity, biogeography, lichenicolous mycobiota.

INTRODUCTION

Thamnolia Ach. ex Shaer. (Icmadophilaceae) is among the host lichen genera with the highest diversity of known lichenicolous fungi (Diederich et al. 2018b). At least 26 species of these fungi have been documented from *Thamnolia* (Diederich et al. 2018a; Zhurbenko 2012, 2017; also herein). Although thamnoliicolous fungi have been specifically treated by Ihlen (1995) and Zhurbenko (2012), including an identification key presented in the latter, their distribution and frequency is still poorly known. Here we provide new distributional records, range extensions and taxonomic notes on thamnoliicolous fungi that were found in conjunction with examining material at several major herbaria.

MATERIALS AND METHODS

This study is based on 81 specimens of lichenicolous fungi found on *Thamnolia* deposited in H (33 specimens) and TNS (48 specimens). Microscopical examination was carried out using a Zeiss Axio Imager A1 microscope equipped with Nomarski differential interference contrast optics (DIC) in water, 10% KOH, Lugol's iodine, directly or after a KOH pre-treatment or brilliant cresyl blue. The length, breadth and length/breadth ratio (l/b) of ascospores are given as: (min–){X–SD}–{X+SD}(–max), where “min” and “max” are the extreme observed values, X the arithmetic mean and SD the corresponding standard deviation. Measurements were taken from water mounts.

NOTES AND NEW DISTRIBUTIONAL RECORDS

Recent phylogenetic studies published by Onut-Brännström et al. (2018) have drastically changed the taxonomy of *Thamnolia*, which currently comprises three species: 1) *T. subuliformis* (Ehrh.) W.L.Culb. s.str. including two chemotypes with baeomycesic and squamatic acids (UV+) or thamnolic acid (UV–)

¹MIKHAIL P. ZHURBENKO – Laboratory of the Systematics and Geography of Fungi, Komarov Botanical Institute, Russian Academy of Sciences, Professor Popov Street, 2, St. Petersburg, 197376, Russia. – e-mail: zhurb58@gmail.com

²YOSHIHITO OHMURA – Department of Botany, National Museum of Nature and Science, Amakubo 4-1-1, Tsukuba, Ibaraki, 305-0005, Japan. – e-mail: ohmura-y@kahaku.go.jp

and exhibits a distribution that is circumpolar in the Arctic and in the alpine areas of both hemispheres; 2) *T. tundrae* Brännström & Tibell containing baeomycesic and squamatic acids (UV+) and known from the Eurasian Arctic and the Aleutian Islands; 3) *T. vermicularis* (Sw.) Schaer. s.str. containing thamnolic acid (UV-) and known from the high alpine regions of Central Europe (the Alps, Tatra Mountains and the Western Carpathian Mountains). These species are morphologically cryptic, in part sympatric, and can only be confidently identified using molecular data. As such the original identifications of *Thamnolia* host species for the taxa reported here should be revised. However, such revision is problematic because many specimens have not been sequenced. Due to this, and the fact that most of thamnoliicolous fungi species appear not to be restricted to a single host species, we omit below the species names of the hosts in the specimen citations below.

***Capronia thamnoliae* Zhurb.**

NOTE. – The species was formerly known from several finds in Canada, Norway, Russia and the U.S.A. (Zhurbenko 2012) and is here newly reported for Japan.

Specimens examined (all on decaying podetia of *Thamnolia* spp.). – **JAPAN. HONSHU:** Shinano Province (Nagano Prefecture), Yatsugatake Mountains, Mount Yoko-dake, Chino-shi, 35°59'N 138°22'E, elev. 2700 m, 5.viii.1990, *H. Shibuichi* 8782a (TNS); Shinano Province (Nagano Prefecture), Yatsugatake Mountains, Mountain Ioh-dake, 36°00'N 138°22'E, elev. 2700 m, 9.viii.1988, *H. Shibuichi* 8427 (TNS). **U.S.A. ALASKA:** Juneau Icefield, summit of mountain above Taku Glacier, 58°42'N 134°13'W, elev. 1460 m, 19.vii.1962, *H.A. Imshaug* 28916a (TNS).

***Cercidospora thamnoliae* Zhurb.**

NOTE. – The species was formerly known from Norway and Russia (Ihlen 1995, Zhurbenko 2012) and is here newly reported for Japan.

Specimen examined. – **JAPAN. HONSHU:** Iwashiro Province (Fukushima Prefecture), Iide Mountains, Mount Iide, Yama-gun, 37°51'N 139°42'E, elev. 2000 m, 26.viii.1975, *H. Shibuichi* 5127a (TNS).

***Cornutispora ciliata* Kalb**

NOTES. – The species grows on various lichen genera (Diederich et al. 2018b) and is here newly reported from *Thamnolia*. The only species of *Cornutispora* previously known to occur on *Thamnolia* is *C. intermedia* Punith. & D.Hawksw. (Etayo 2010).

Specimen examined. – **U.S.A. ALASKA:** Alaska Range, Mountain Hayes Quadrangle, Gerstle River outwash gravel, 63°51'N 144°53'W, elev. 375 m, 23.vi.1966, *L.A. Viereck* 7971a (H).

***Endococcus thamnoliae* Etayo & R.Sant.**

NOTES. – Based on the material that we have examined, the range of variation in the size of the ascospores is somewhat larger than indicated in the protologue ((7.4–)8.8–11.0(–13.2) × (3.2–)3.7–4.5(–5.4) µm, l/b = (1.8–)2.1–2.7(–3.4), n = 133 vs. 9–12.5 × 3.5–5 µm *fide* Etayo 2010). The species was formerly known from Peru (Etayo 2010) and is here reported for the first time outside South America from Papua New Guinea.

Specimens examined. – **PAPUA NEW GUINEA. WESTERN HIGHLAND DISTRICT:** between Pindaunde Lakes and summit of Mount Wilhelm, elev. 4100–4200 m, 31.xii.1973, *H. Kashiwadani* 11006 (TNS), *H. Kashiwadani* 10831 (TNS). **CENTRAL DISTRICT:** Mount Albert Edward, elev. 3000–3450 m, 25.x.1975, *S. Kurokawa* 9401 (TNS). **PERU. JUNIN REGION:** Jauja Province, 30 km (road distance) NNW of Jauja, 11°35'S 75°35'W, elev. 4100 m, 10.ii.1981, *R. Santesson et al. s.n.* (H); Tarma Province, between La Oroya and Junin, S of the turn towards San Pedro, 11°17'S 75°56'W, elev. 4200 m, 16.ii.1981, *R. Santesson & R. Moberg s.n.* (H).

***Lichenopeltella thamnoliae* R.Sant.**

NOTE. – The species is known only from South America, where it is rather widely distributed (Etayo 2010, 2017; Santesson 1998; Zhurbenko 2012).

Specimens examined. – **COLOMBIA. BOYACÁ DEPARTMENT:** Páramo de Pisva, 5 km E of Los Pinos, elev. 3750 m, 14.vi.1972, *A.M. Cleef* 4540 (H); Páramo de la Sarna between Sogamoso and Vado Hondo, 5 km NE of Laguna de Tota, elev. 3550 m, 29.iii.1973, *A.M. Cleef* 9203 (H). **VENEZUELA. MÉRIDA:** near Pico el Aguilo, elev. 4025 m, 18.viii.1989, *R. Ornduff s.n.* (H).

***Merismatium thamnoliicola* Alstrup & E.S.Hansen**

NOTE. – The species was formerly known from Greenland and Russia (Alstrup & Hansen 2001, Zhurbenko 2012) and is here newly reported for Norway.

Specimen examined. – **NORWAY. SÖR-TRÖNDELAG:** Kongsvoll, vii.1933, *E.P. Vrang s.n.*[c] (H).

***Polycoccum vermicularium* (Linds.) D.Hawksw.**

NOTES. – The dimensions of the ascospores calculated from all the examined specimens vary considerably ((12.9–)15.4–18.8(–22.0) × (6.4–)7.3–8.7(–9.6) µm, l/b = (1.6–)2.0–2.4(–2.8), n = 238). However, in the material from South America the length on average was somewhat shorter (14.6–18.2 µm) than in the material from the northern Holarctic (16.4–19.8 µm), which suggests that the material is taxonomically heterogeneous. It is also noteworthy that typically ascomata are aggregated in dense groups and often protruding in the ostiolar area, but in some well-developed specimens from South America (e.g., *Cleef 1786*, *Imshaug 40468b*, *Imshaug 41387 & Harris*, *Imshaug 53198 & Ohlsson*) they are exclusively dispersed and not protruding. The species is widely distributed in both hemispheres (Alstrup & Hawksworth 1990, Etayo 2010, Etayo & Sancho 2008, Flakus & Kukwa 2012, Hafellner 1994, Hawksworth & Diederich 1988, Santesson et al. 2004, Zhurbenko 2012) and is here newly reported for Argentina, Australia, Colombia, Japan, Nepal and Papua New Guinea.

Specimens examined. – **ARGENTINA. ISLA DE LOS ESTADOS:** Cabo San Bartolome, N slope of W end of peninsula, 54°54'S 64°42'W, 5.xi.1971, *H. Imshaug 53198 & K. Ohlsson* (H). **AUSTRALIA. VICTORIA:** Bogong High Plains, Mount McKay, 27.i.1967, *R. Filson 9654* (H). **CANADA. ONTARIO:** Kenora District, Fort Severn, 56°00'N 87°28'W, 2.viii.1958, *T. Ahti s.n.*[b] (H). **CHILE. MAGALLANES REGION:** near base of Monte Aymond, 52°09'S 69°29'W, 9.x.1971, *H. Imshaug 49809 & K. Ohlsson* (H). **COLOMBIA. BOYACÁ DEPARTMENT:** Paramos al NW de Belen, vereda S. Jose de la Montana, alto de las Cruces y alrededores Cabeceras Q. El Toral, elev. 3830 m, 24.xi or ii.1972, *A.M. Cleef 1786* (TNS). **FALKLAND ISLANDS.** East Falklands, Stanley, summit of Mount Kent, elev. 460 m, 14.i.1968, *H.A. Imshaug 40468 & R.C. Harris* (TNS); West Falklands, Port Howard, summit of Mount Maria, elev. 630 m, 28.i.1968, *H.A. Imshaug 41387 & R.C. Harris* (TNS). **NEPAL.** Himalaya, between Sangda and Kagbeini, elev. 4300 m, 12.v.1953, *S. Nakao s.n.* (TNS); Gandaki & Dhawalagiri Zones, Manang & Mustang Districts, Thorung Phedi (4370 m)–Thorung La (5110 m)–above Muktinath (3720 m), elev. 4850 m, 19.viii.1994, *M. Mikage et al. 9460415-13a* (TNS). **JAPAN. HONSHU:** Shinano Province (Nagano Prefecture), Yatsugatake Mountains, 35°58'N 138°22'E, 27.vii.1959, *M. Togashi & S. Kurokawa s.n.*[b] (TNS). **NORWAY. SVALBARD:** Spitsbergen, Ossian Sarsfjellet, Kongsfjorden, elev. 0–100 m, 25.vii.1985, *H. Kashiwadani 23219* (TNS). **HORDALAND:** parish Granvin, Mount Nesheimshorgen, elev. 1000 m, ix.1915, *J.J. Havaas s.n.* (H). **PAPUA NEW GUINEA. WESTERN HIGHLAND DISTRICT:** between Pindaunde Lakes and summit of Mount Wilhelm, elev. 4150 m, 31.xii.1973, *H. Kashiwadani 11154a* (TNS). **PERU. ANCASH REGION:** Huaraz Province, road Huaraz–Casma, 31 km (road distance) WSW of Huaraz, 9°33'S 77°41'W, elev. 4100 m, 27.ii.1981, *R. Santesson & R. Moberg s.n.* (H). **JUNIN REGION:** border of Jauja and Tarma Provinces, km 37 of the road between Jauja and Tarma, 11°35'S 75°35'W, elev. 4140 m, 18.ix.1977, *D. Vitt 21661* (H). **SWEDEN. ÖLAND:** Sandby, Ekelunda, northernmost part of Stora Alvaret, 31.v.2000, *R. Skytén 6490* (H). **JÄMTLAND:** Åre parish, Mount Snasahögarna, elev. 730 m, 14.viii.1975, *H. Vänskä 7529* (H).

***Sphaerellothecium thamnoliae* Zhurb. var. *taimyricum* Zhurb.**

NOTE. – This taxon was formerly known from Russia (Zhurbenko 2012) and is here newly reported from Nepal.

Specimen examined. – **NEPAL.** Gandaki & Dhawalagiri Zones, Manang & Mustang Districts, Thorung Phedi (4370 m)–Thorung La (5110 m)–above Muktinath (3720 m), elev. 4850 m, 19.viii.1994, *M. Mikage et al. 9460415-13b* (TNS).

Sphaerellothecium thamnoliae* Zhurb. var. *thamnoliae

NOTES. – The taxon is widely distributed in the northern hemisphere (Zhurbenko 2012) and is here first reported for Australia, Falkland Islands, Japan and Papua New Guinea. In the southern hemisphere the species, without indication of variety, was formerly reported only from Ecuador (Etayo 2017).

Specimens examined. – **AUSTRALIA. AUSTRALIAN CAPITAL TERRITORY:** Brindabella Range, 38 km SW of Canberra, Mount Franklin, 35°29'S 148°47'E, elev. 1640 m, 15.xii.1998, *H. Streimann 63462a* (H), *H. Streimann 63462b* (H). **NEW SOUTH WALES:** Ridge between Mountains Kelly and Scabby, 31 km ENE of Adaminaby, 35°43'S 148°52'E, elev. 1640 m, 22.i.1992, *H. Streimann 49174* (H). **FALKLAND ISLANDS.** East Falklands, Darwin Settlement, Boca House on Brenton Lock, 11.i.1968, *H.A. Imshaug 40278* & *R.C. Harris* (TNS). **JAPAN. HONSHU:** Rikuchu Province (Iwate Prefecture), summit of Mount Hayachine, 39°33'N 141°29'E, elev. 1900 m, 27.vii.1967, *S. Kurokawa 67149* (TNS), 3.ix.1959, *S. Kurokawa 59360* (TNS). **NORWAY. SÖR-TRÖNDELAG:** Kongsvoll, vii.1933, *E.P. Vrang s.n.[b]* (H). **PAPUA NEW GUINEA.** Morobe Province, Mount Sarawaket, 4 km SE of Lake Gwam, 6°21'S 147°09'E, elev. 3300 m, 5.vii.1981, *T. Koponen 31788* (H). **WESTERN HIGHLAND DISTRICT:** between Pindaunde Lakes and summit of Mount Wilhelm, elev. 4200 m, 31.xii.1973, *H. Kashiwadani 11009* (TNS), *H. Kashiwadani 11154b* (TNS), *H. Kashiwadani 11159* (TNS), elev. 4400 m, 31.xii.1973, *H. Kashiwadani 11242* (TNS). **CENTRAL DISTRICT:** Mount Albert Edward, elev. 3600 m, 25.x.1975, *S. Kurokawa 9400* (TNS). **U.S.A. ALASKA:** Juneau Icefield, summit of mountain above Taku Glacier, 58°42'N 134°13'W, elev. 1460 m, 19.vii.1962, *H.A. Imshaug 28916b* (TNS). **COLORADO:** Grand Co., Berthoud Pass, head of Current Creek, Continental Divide and cirque basin, elev. 3470–3810 m, 6.vii.1960, *S. Shushan et al. 24777a* (H).

***Sphaeropezia santessonii* (Zhurb., Etayo & Diederich) Baloch & Wedin**

NOTE. – The species was formerly known from Canada, Iceland, Peru and Russia (Diederich et al. 2002, Zhurbenko 2012) and is here newly reported for Japan.

Specimens examined. – **ICELAND. CENTRAL HIGHLANDS:** S of Hofsjökull Glacier, Jökulkriki, elev. 620 m, 22.vii.1972, *H. Kristinsson 24811* (H); Jokuldalur Valley, near Tungnafellsjökull Glacier, elev. 1050 m, 8.viii.1967, *H. Kristinsson 23093a* (TNS). **JAPAN. HONSHU:** Shinano Province (Nagano Prefecture), Yatsugatake Mountains, 27.vii.1959, *M. Togashi & S. Kurokawa s.n.[a]* (TNS). **PERU. JUNIN REGION:** Jauja Province, 30 km (road distance) NNW of Jauja, 11°35'S 75°35'W, elev. 4100 m, 10.ii.1981, *R. Santesson et al. s.n.* (H).

***Stigmidium frigidum* (Sacc.) Alstrup & D.Hawksw.**

NOTE. – The species is widely distributed in both hemispheres (Alstrup & Hawksworth 1990, Etayo 2010, Hafellner 1994, Hafellner & Mayrhofer 2007, Kukwa & Flakus 2009, Santesson et al. 2004, Zhurbenko 2012) and is here newly reported for Japan.

Specimens examined. – **JAPAN. HONSHU:** Shinano Province (Nagano Prefecture), Yatsugatake Mountains, Mount Yoko-dake, Chino-shi, elev. 2700 m, 5.viii.1990, *H. Shibuichi 8782b* (TNS); Kobushi-dake Mountains, Mount Sanpo, Minami-Saku-gun, elev. 2450 m, 12.vii.1979, *H. Shibuichi 5862* (TNS).

***Taeniolella* sp. (putative asexual morph of *Sphaerellothecium thamnoliae*)**

NOTES. – The examined material matches the fungus described by Heuchert et al. (2018: Figs 73–74) based on collections from Norway and Russia. This is the first report of this putative asexual morph from Japan.

Specimens examined. – **JAPAN. HONSHU:** Shinano Province (Nagano Prefecture), Jogo-sawa, Yatsugatake Mountains, Chino-shi, 35°59'N 138°22'E, elev. 2400 m, 27.viii.1997, *H. Shibuichi 9804* (TNS). Musashi Province, Mount Sanpoh, Chichibu-gun, 35°55'N 138°44'E, elev. 2480 m, 2.viii.1974, *H. Shibuichi 4967* (TNS). Kai Province (Yamanashi Prefecture), Tengu-one Ridge, Mount Kokushi-dake, Higashi-Yamanashi-gun, 35°52'N 138°40'E, elev. 2500 m, 26.vii.1972, *H. Shibuichi 4686* (TNS); Mount Kita-dake, near Kotaro-goya, 35°41'N 138°14'E, elev. 3000 m, 4.viii.1967, *M. Togashi s.n.* (TNS).

***Thamnogalla crombiei* (Mudd) D.Hawksw.**

NOTE. – This species is widely distributed in both hemispheres (Etayo 2010, Etayo & Sancho 2008, Flakus & Kukwa 2012, Hafellner & Mayrhofer 2007, Hawksworth 1980, Kukwa & Flakus 2009, Santesson et al. 2004, Zhurbenko 2012, Zhurbenko & Daniëls 2003) and is here newly reported for Australia, Bhutan, India, Japan, Nepal, North Korea and Papua New Guinea.

Specimens examined. – **AUSTRALIA. VICTORIA:** Cobberas Range between peaks 1 & 2, Mount Ida, i.1970, *H.A. Morrison s.n.* (H); Bogong High Plains, Mount Nelson, elev. 1880 m, 20.i.1966, *R. Filson 8128* (TNS). **BHUTAN.** Lingshi (4100)–Yale La (4800)–Shodu (4000), 23.v.1967, *H. Hara et al. 19803* (TNS); Laum Thang (3900)–Singke La (4950)–Chawa Gassar (4000), 19.v.1967, *H. Hara et al.*

20080 (TNS). **CANADA. ALBERTA:** SW of Calgary, 0.5 mi S of Savanna Creek, 3.25 mi ESE of the summit of Mount Pasque, elev. 2130 m, 28.ix.1963, *C.D. Bird 9085* (H). **ONTARIO:** Kenora District, Fort Severn, 56°00'N 87°28'W, 2.viii.1958, *T. Ahti s.n.[a]* (H). **INDIA. SIKKIM:** Jongri Peak, elev. 4000 m, 21.v.1960, *M. Togashi et al. s.n.* (TNS). **JAPAN. HOKKAIDO:** Ishikari Province, Daisetsu Mountains, Mount Haku-un, 43°39'N 142°54'E, elev. 2100 m, 4.viii.1980, *H. Kashiwadani 16253 & Y. Endo* (TNS); Daisetsu Mountains, southern slope of Mount Akadake, 43°40'N 142°55'E, elev. 2000 m, 18.ix.1971, *S. Kurokawa 71137* (TNS); Daisetsu Mountains, Mount Tomuraushi, 43°31'N 142°51'E, elev. 2000 m, 18.vii.1969, *M. Togashi s.n.[b]* (TNS); Daisetsu Mountains, 43°N 142°E, 26.vii.1937, *Y. Asahina s.n.* (TNS). Etchu Province (Toyama Prefecture), Mount Yakushi, 36°28'N 137°33'E, 25.vii.1936, *Y. Asahina s.n.* (TNS); Mount Kaminotake, 36°25'N 137°31'E, 24.vii.1936, *Y. Asahina s.n.* (TNS). Iwashiro Province (Fukushima Prefecture), Mount Iide, Yama-gun, 37°51'N 139°42'E, elev. 2000 m, 26.viii.1975, *H. Shibuichi 5127b* (TNS), *H. Shibuichi 5128* (TNS). Shinano Province (Nagano Prefecture), Mount Yatsugatake, Kita-Azumi-gun, 35°58'N 138°22'E, 11.viii.1952, *S. Kurokawa 520431* (TNS). **NEPAL.** [without additional locality data], elev. 3900 m, 28.v.1953, *D.D. Awasti 2334* (TNS). **NORTH KOREA.** Hamkyonnam-do Province, Mount Paekdu, 41°60'N 128°05'E, 26–27.vii.1933, *T. Ueda s.n.* (TNS). **NORWAY. TRØNDELAG:** Oppdal Municipality, Kongsvoll, vii.1933, *E.P. Vrang s.n.[a]* (H). **PAPUA NEW GUINEA.** Western Highlands Province, between Pindaunde Lakes and summit of Mount Wilhelm, elev. 4150 m, 31.xii.1973, *H. Kashiwadani 11159* (TNS). **PERU. JUNIN REGION:** Tarma Province, between La Oroya and Junin, S of the turn towards San Pedro, 11°17'S 75°56'W, elev. 4200 m, 16.ii.1981, *R. Santesson s.n. & R. Moberg* (H). **CUZCO REGION:** Paucartambo, road Oropesa–Paucartambo, between Huancarane and Sayllapata, 13°25'S 71°45'W, elev. 3850 m, 26.iii.1981, *R. Santesson et al. s.n.* (H). **SWEDEN. GOTLAND:** Visby, 28.vi.1875, *S.O. Lindberg s.n.* (H). **ÖLAND:** Stora Alvaret, 4 km ESE of the Resmo church, 2.vii.1957, *R. Santesson 11924* (H), 8.viii.1911, *R. Sterner s.n.* (H). **U.S.A. ALASKA:** Bering Strait District, Ukinyik Creek Drainage, 68°43'–47'N 165°45'–166°12'E, elev. 600 m, 4.viii.1960, *L. Viereck & A. Bucknell s.n.[b]* (H). **COLORADO:** Grand Co., Berthoud Pass, head of Current Creek, Continental Divide and cirque basin, elev. 3470–3810 m, 6.vii.1960, *S. Shushan 24777a* (H). Clear Creek Co., Mount Evans, elev. 4200 m, 30.vii.1961, *A. Henssen 13095j* (H). **WYOMING:** Albany Co., summit of Medicine Bow Peak, elev. 3660 m, 4.vii.1956, *H.A. Imshaug 18901* (H).

ACKNOWLEDGEMENTS

The research of MZ was carried out within the framework of the research project of the Komarov Botanical Institute of the Russian Academy of Sciences “Biodiversity and spatial structure of fungi and myxomycetes communities in natural and anthropogenic ecosystems” (AAAA-A18-118031290108-6) using equipment of its Core Facility Center “Cell and Molecular Technologies in Plant Science”, his visit to TNS was supported by JSPS Invitation Fellowship for Research in Japan (no. S16173). We are indebted to the curator of H herbarium Leena Myllys who assisted in processing relevant *Thamnolia* specimens for study and loan. Adam Flakus is thanked for his valuable remarks during the preparation of this paper.

LITERATURE CITED

- Alstrup, V. and E.S. Hansen. 2001. New lichens and lichenicolous fungi from Greenland. *Graphis Scripta* 12: 41–50.
- Alstrup, V. and D.L. Hawksworth. 1990. The lichenicolous fungi of Greenland. *Meddelelser om Grønland, Bioscience* 31: 1–90.
- Diederich, P., M. Zhurbenko and J. Etayo. 2002. The lichenicolous species of *Odontotrema* (syn. *Lethariicola*) (Ascomycota, Ostropales). *Lichenologist* 34: 479–501.
- Diederich, P., E. Zimmermann, M. Sikaroodi, M. Ghobad-Nejhad and J.D. Lawrey. 2018a. A first lichenicolous *Corticium* species (Corticaceae, Corticiales), described from *Thamnolia vermicularis* in Switzerland. *Bulletin de la Société des naturalistes luxembourgeois* 120 (in press).
- Diederich, P., J.D. Lawrey and D. Ertz. 2018b. The 2018 classification and checklist of lichenicolous fungi, with 2000 non-lichenized, obligately lichenicolous taxa. *The Bryologist* 121: 340–425.
- Etayo, J. 2010. Hongos liquenícolas de Perú Homenaje a Rolf Santesson. *Bulletin de la Société linnéenne de Provence* 61: 1–46.
- Etayo, J. 2017. Hongos liquenícolas de Ecuador. *Opera Lilloana* 50: 1–535.
- Etayo, J. and L.G. Sancho. 2008. Hongos liquenícolas del Sur de Sudamérica, especialmente de Isla Navarino (Chile). *Bibliotheca Lichenologica*, 98: 1–302.
- Flakus, A. and M. Kukwa. 2012. New records of lichenicolous fungi from Bolivia. *Opuscula Philolichenum* 11: 36–48.
- Hafellner, J. 1994. Beiträge zu einem Prodrömus der lichenicolen Pilze Österreichs und angrenzender Gebiete. I. Einige neue oder seltene Arten. *Herzogia* 10: 1–28.

- Hafellner, J. and H. Mayrhofer. 2007. A contribution to the knowledge of lichenicolous fungi and lichens occurring in New Zealand. *Bibliotheca Lichenologica* 95: 225–266.
- Hawksworth, D.L. 1980. Notes on British lichenicolous fungi: III. Notes from the Royal Botanic Garden Edinburgh 38: 165–183.
- Hawksworth, D.L. and P. Diederich. 1988. A synopsis of the genus *Polycoccum* (Dothideales), with a key to accepted species. *Transactions of the British Mycological Society* 90: 293–312.
- Heuchert, B., U. Braun, P. Diederich and D. Ertz. 2018. Taxonomic monograph of the genus *Taeniolella* s. lat. (*Ascomycota*). *Fungal Systematics and Evolution* 2: 69–261.
- Ihlen, P.G. 1995. The lichenicolous fungi on *Thamnolia vermicularis* in Norway. *Graphis Scripta* 7: 17–24.
- Kukwa, M. and A. Flakus. 2009. New or interesting records of lichenicolous fungi from Poland VII: species mainly from Tatra Mountains. *Herzogia* 22: 191–211.
- Onut-Brännström, I., H. Johannesson and L. Tibell. 2018. *Thamnolia tundrae* sp. nov., a cryptic species and putative glacial relict. *Lichenologist* 50: 59–75.
- Santesson, R. 1998. Fungi lichenicoli exsiccati. Fasc. 11 & 12 (nos. 251–300). *Thunbergia* 28: 1–19.
- Santesson, R., R. Moberg, A. Nordin, T. Tønsberg and O. Vitikainen. 2004. Lichen-forming and lichenicolous fungi of Fennoscandia. Museum of Evolution, Uppsala University. 359 pp.
- Zhurbenko, M.P. 2012. Lichenicolous fungi growing on *Thamnolia*, mainly from the Holarctic, with a worldwide key to the known species. *The Lichenologist* 44: 147–177.
- Zhurbenko, M.P. 2017. Lichenicolous fungi of the Caucasus: New species, new records and a second synopsis. *Opuscula Philolichenum* 16: 267–311.
- Zhurbenko, M.P. and F.J.A. Daniëls. 2003. New or rarely reported lichenicolous fungi and lichens from the Canadian Arctic. *Mycotaxon* 88: 97–106.

A Provisional Checklist of the Lichens of Belarus

ANDREI TSURYKAU¹

ABSTRACT. – A total of 606 species and five subspecific taxa of lichens and allied fungi are documented from Belarus based on combined historical (pre-1980) and modern (post-1980) records. Of these, 50 (8.3%) are represented by only historical reports, 235 (38.8%) are represented by only modern vouchers, and 310 (51.2%) are represented by both historical and modern records. Eleven species are known only from generalized published reports that lacked specific location data. Eighty-eight species are excluded as erroneous reports, or considered as doubtful records.

KEYWORDS. – Biodiversity, distribution, lichenized fungi, historical baseline.

INTRODUCTION

Published accounts of the lichens of Belarus date to the end of the 18th century (Gilibert 1781). In the first phase of lichenological discovery in the country (1780–1900) lichens did not attract special attention and were reported among the general lists of vascular plants and fungi. However, 49 species were reported by the French botanist J.E. Gilibert, the Russian ethnographer of Belarusian origin N. Downar (Dovnar-Zapol'skiy) and Polish botanists K. Filipowicz and F. Błoński (Błoński 1888, 1889; Downar 1861; Filipowicz 1881; Gilibert 1781, 1792).

In the early 20th century (1900–1925), there was a second phase of lichenological discovery in Belarus. During that time, Belarusian pioneer lichenologist V.P. Savicz and his wife L.I. Ljubitzkaja (later Savicz-Ljubitzkaja) reported 91 species new to the country (Ljubitzkaja 1914; Savicz 1909, 1910, 1911, 1925; Savicz & Savicz 1924; Wyssotzky et al. 1925). Their collections are housed in LE. Other lichenologists visited the territory that constitutes modern Belarus between 1910 and 1925. These included G.K. Kreyer, E. Bachmann, F. Bachmann, F. von Tessenorff, and A.N. Oksner who published several contributions (Bachmann & Bachmann 1920; Kreyer 1913, 1914; Oksner 1924, 1925; Tessenorff 1922). An important study of this second period that of Bachmann and Bachmann (1920), who made collections on the battlefield during the World War I. In total, 260 lichens new to Belarus were reported over this 25-year period, increasing the known total to 309 species at that time.

A third phase, corresponding to the period 1926–2005, included the publication of many studies focused on forest and urban lichen ecology as well as environmental lichen monitoring. This work was carried out by more than a dozen lichenologists in Belarus (e.g. Boiko et al. 1981; Busko et al. 1995; Ges 1960; Golubkov 1987, 1992, 1993; Golubkov & Kobzar 2005; Golubkov & Vynaev 1981; Gorbach 1955, 1957, 1965d, 1970; Gorbach & Getko 1978; Insarov & Pchelkin 1982; Kiselev et al. 1983, 1986; Kobzar 1997; Kravchuk 2000, 2001; Kravchuk & Kakareka 1995, 1998; Krawiec 1938; Makarevich 1960; Tomin 1937, 1939, 1956; Tsettermann 1948, 1973b, 1981), including M.P. Tomin, N.V. Gorbach, N.N. Kobzar and V.V. Golubkov. Golubkov in particular, drew attention to conservation biology by studying the lichens of protected areas and by including threatened species in the second and third editions of the Red Data Books of Belarus (Darafeeu 1993; Golubkov 2002, 2014d; Golubkov & Kobzar 2005).

The current phase of lichenology in Belarus began in 2006, when the present author, together with P. Bely and A. Yatsyna began their careers in lichenology. This phase has been marked by chemical analysis such as thin layer chromatography, as well as collaboration with foreign mycologists and lichenologists. As a result, approximately 150 lichens new to the country have been reported during last decade, mainly by these workers and V.V. Golubkov (e.g. Bely 2011a; Golubkov & Kukwa 2006;

¹ANDREI TSURYKAU – Department of Biology, F. Skorina Gomel State University, Sovetskaja str. 104, Gomel, 246019, Belarus – e-mail: tsurykau@gmail.com

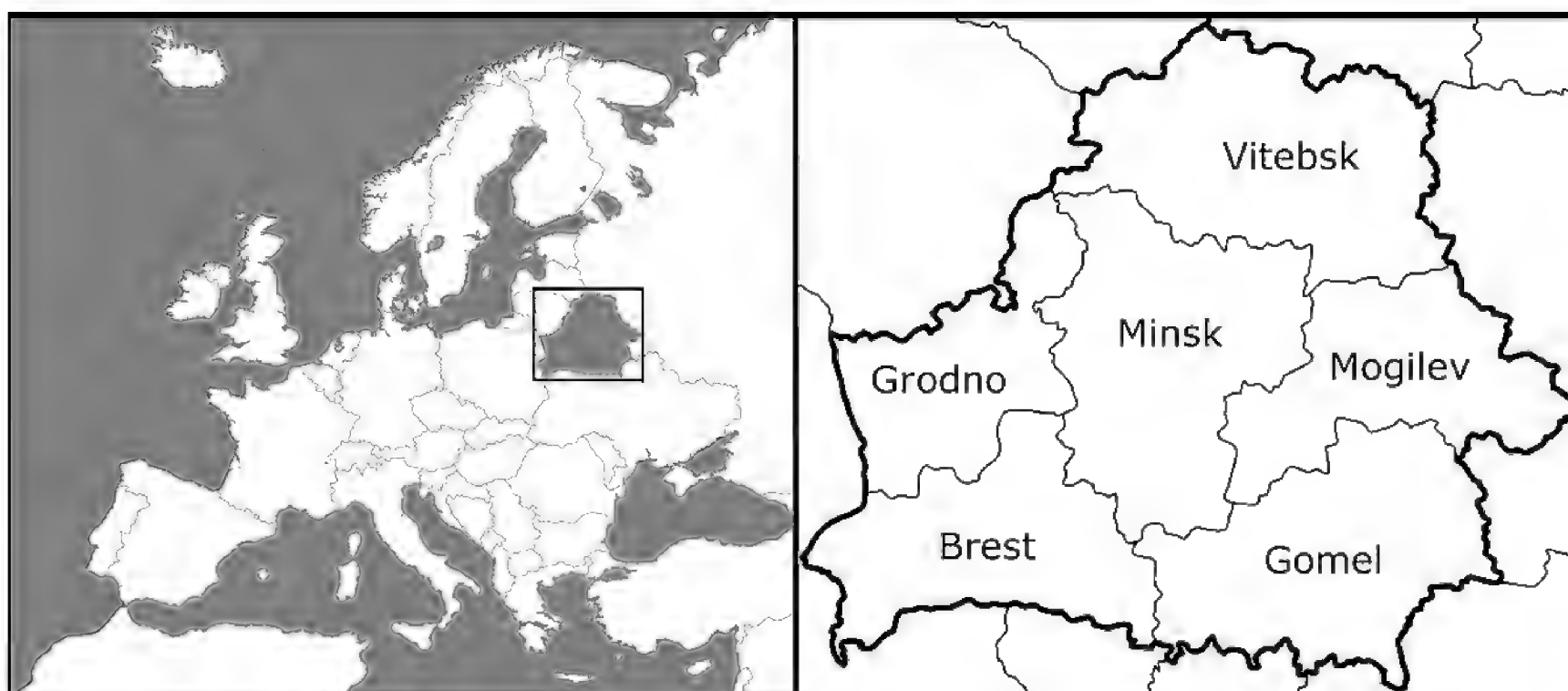


Figure 1. The study area (Belarus) within the context of Europe (left) and a map of the administrative divisions of the country (right).

Tsurykau & Golubkov 2015; Tsurykau et al. 2014a, 2016a, 2017c; Yatsyna 2011e, 2012d, 2013f, 2014a, 2015d, Yatsyna & Motiejūnaite 2015). Furthermore, special attention was also focused on lichenicolous fungi, whose known biodiversity in Belarus has increased rapidly from 21 species in 2011 to 66 species in 2017 (Tsurykau 2017a).

As is the case with many regions worldwide, the Belarusian lichen biota remains little investigated despite a long history of research. Two lists devoted to the lichens of Belarus were published recently, when Yurchenko (2011) and Yatsyna and Merzhvinsky (2012) independently reported 549 species each. However, these contributions listed different species and were mainly summaries of Latin names that had been reported from the country in earlier publications. Furthermore, those authors did not critically reexamine the supporting vouchers and published descriptions associated with the reports, rather applying nomenclatural updates using Index Fungorum. Given the major changes to lichen taxonomy and species delimitation that have occurred since many historical reports were published, such nomenclatural updates led to several erroneous reports (see doubtful and excluded species). Presently there is no comprehensive checklist of lichens from Belarus that both incorporates all the available published data and attempts to summarize the modern diversity, distribution and substrate preferences of the taxa in the region. The present contribution aims to fill this gap.

MATERIALS AND METHODS

The Study Area. – Belarus is an Eastern European country (207600 km²), located within 51–56°N and 23–33°E. The country borders Latvia, Lithuania, Poland, Russia and Ukraine (Figure 1). The main part of the area comprises flat lowland terrain. The central part has rugged relief (Minsk Upland) with the highest point reaching 345 meters (Dementiev et al. 1977). The climate of Belarus is moderately continental. Average temperatures in July vary from +17°C in the north to +18°C in the south, in January from –4.5°C in south-western part to –8°C in the northeast. The annual mean precipitation is 600–700 mm (Loginov 1996).

As has been summarized by Yurkevich et al. (1979) and Zeliankevich et al. (2016), natural vegetation covers more than 64% of the total land area and is represented by forests (39.5%), meadows (14.6%), bogs (7.1%) and shrubs (3%). Forest stands are mainly dominated by *Pinus sylvestris* (50.3% of the forested area; Figure 2) together with several other tree species such as *Betula pendula* (23.2%; Figure 3), *Picea abies* (9.2%; Figure 4), *Alnus glutinosa* (8.5%; Figure 5), *Quercus robur* (3.4%; Figure 5) and *Populus tremula* (2.1%). Other tree species dominate in 3.3% of forests in Belarus.

The territory of Belarus straddles the border of two major physiographic regions, namely Eurasian coniferous (taiga) and European broadleaved forests. Therefore, the forests are heterogenous in the country. Southern Belarus is outside the natural range of *Picea abies* and dominated by *Pinus sylvestris* and *Quercus robur*. Northern Belarus is covered by taiga forests (Yurkevich et al. 1979).



Figure 2. Middle aged Scots pine forest, the main type of woodland in Belarus (top) and *Cladonia* dominated sandy soil in pine forest in southeastern Belarus (bottom).



Figure 3. Silver birch forest, the secondmost dominant forest type in Belarus (top) and mixed broadleaved-coniferous forest, a common vegetation type in Belarus (bottom).



Figure 4. Norway spruce forest, an example of an important vegetation type in Belarus.



Figure 5. Black alder woodland in Belowiezha National Park (top) and Pedunculate oak stand in southern Belarus (bottom).

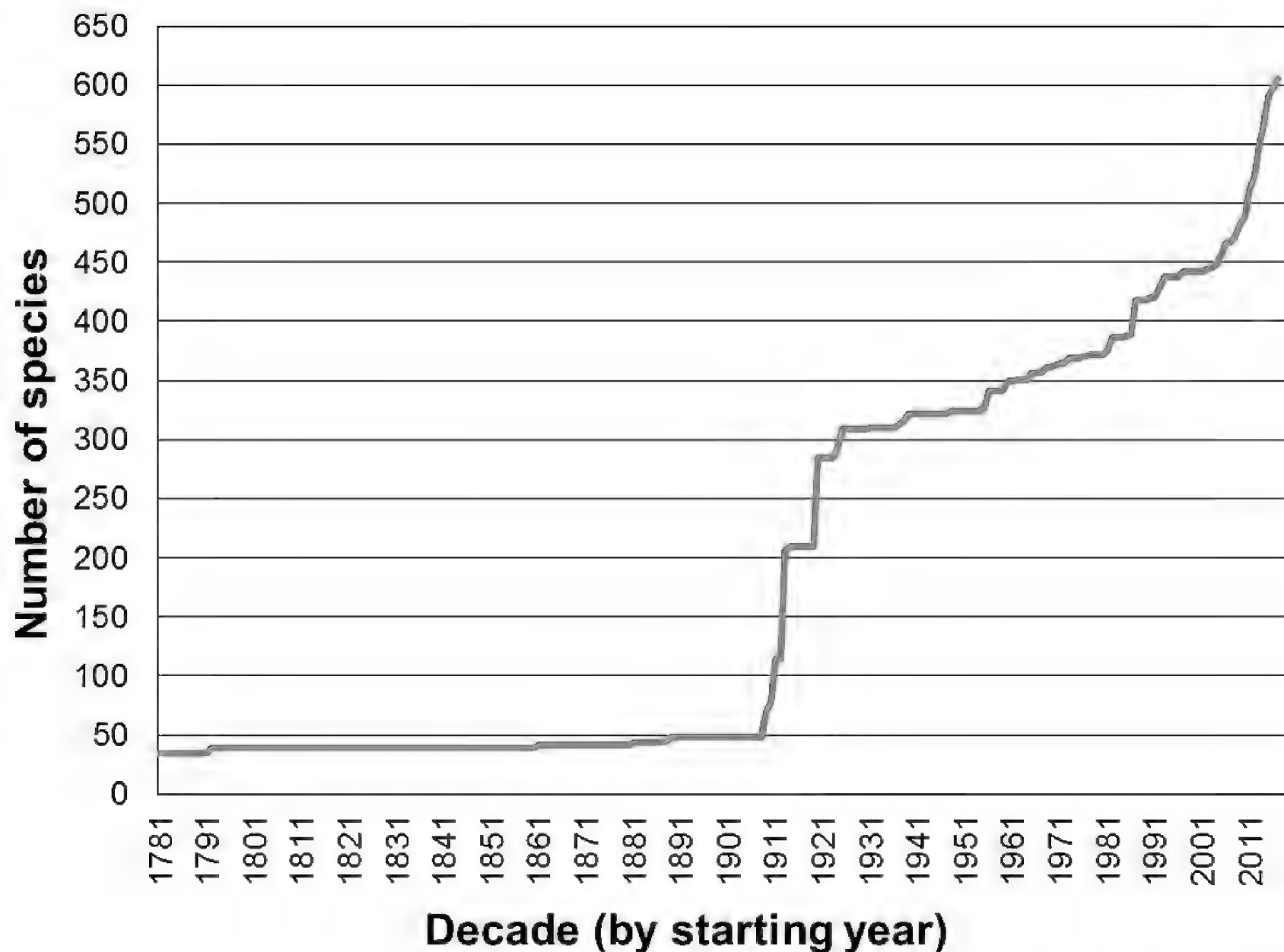


Figure 6. Accumulation of lichen species known from Belarus since the initiation of lichenological studies in the country (species count based on reports that were updated to follow modern taxon delimitations).

There are several kinds of protected areas: 2 nature reserves, 4 national parks, 373 wildlife sanctuaries of state (98) and local (275) significance, and 887 monuments of nature of state (319) and local significance (568). In total, protected areas encompass 8.8% of the territory of Belarus (Medvedeva 2016).

Compilation of the Checklist. – For the checklist, all geographically relevant publications were analysed. Only original reports were added to the checklist, and therefore every lichen record in each paper was critically examined by searching the references to determine whether it was an original report or a citation of previously published data. The latter were excluded from the checklist because they repeat information that had already been published earlier. In a small number of cases where questions arose during the process, the authors were personally contacted. To clarify the status of some doubtful records, curators at H and LE were contacted to check the availability and/or identity of supporting vouchers.

Ecology and distributional data for two lichen species (*Arctoparmelia centrifuga* and *Hazslinszkyia gibberulosa*) were not provided in the original reports, but are included here based on information associated with the vouchers at GSU. In several cases, while the original published report did not provide specific substrate or geographical provenance data, these data were taken from subsequent publications that elaborated on the original reports. Specifically, Golubkov and Shukanov (1983) and Golubkov (1992) supplemented Golubkov & Vynaev (1981), Golubkov (1993, 2011) supplemented Golubkov (1992), Yurchenko (2011) supplemented Golubkov (1996) and Golubkov and Kobzar (2005), Tsurykau and Khranchankova (2011b) supplemented Tsurykau and Khranchankova (2008), and Gapienko et al. (2014) supplemented Yatsyna (2011e). Since the substrate preferences cited by Gorbach (1973b) can refer to other countries (e.g. Oksner 1956, 1968) they were not included in the present list.

Historical reports that included descriptions were critically examined to confirm that the reports likely corresponded to a given modern species concept (i.e., in such cases the citation of a report in the checklist implies that the report was likely correct and its inclusion is not exclusively based on a

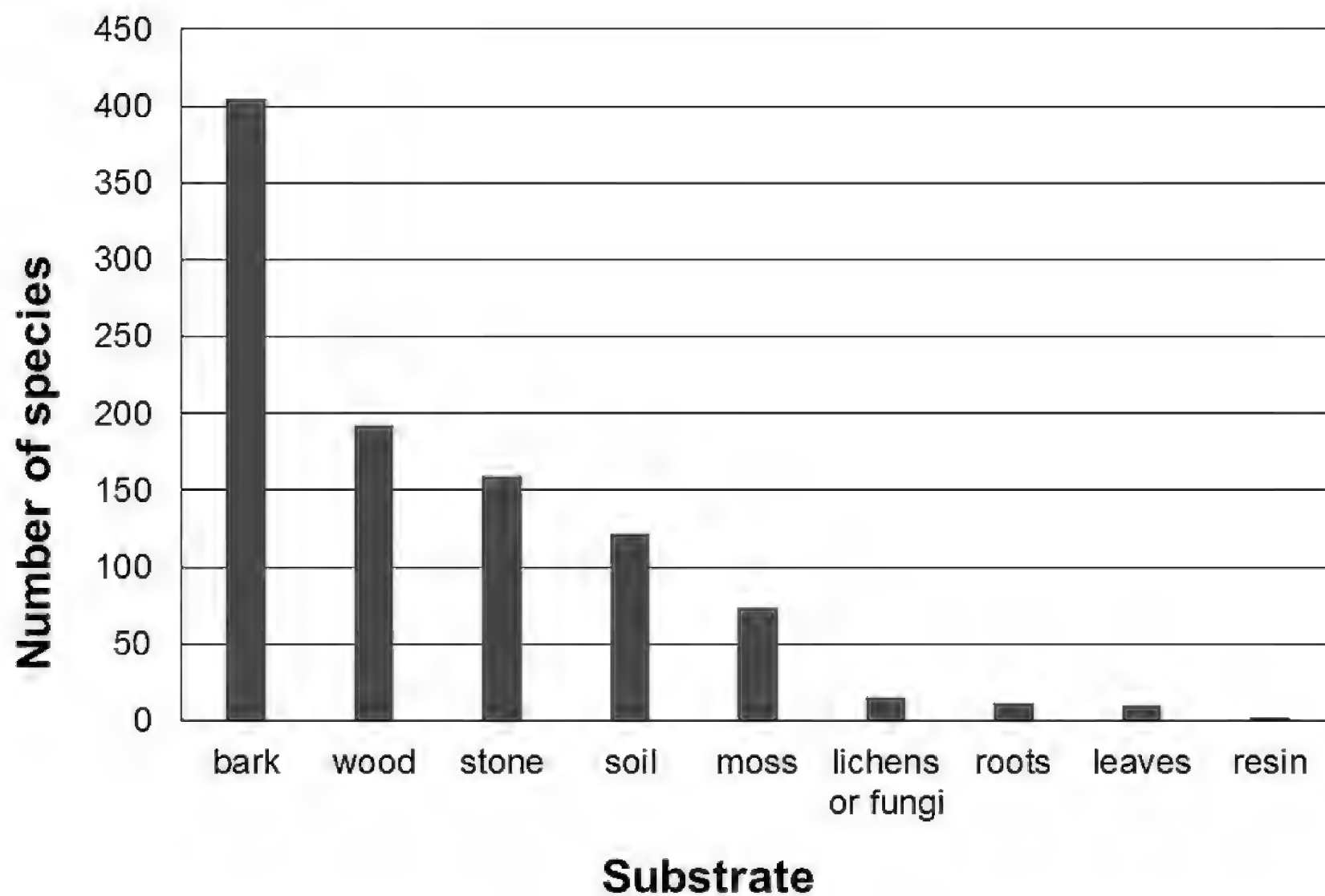


Figure 7. Total number of lichen species known from major substrate classes in Belarus.

nomenclatural update of the original name). All doubtful reports are discussed in the list, and the majority are explicitly excluded pending further study.

RESULTS AND DISCUSSION

The list of Belarusian lichens presented here includes 606 species and five subspecific taxa. Eighty-eight species are excluded as erroneous reports or treated as doubtful records. Of the species accepted as occurring in the region, 235 (38.8%) are represented by only modern (post-1980) vouchers (Figure 6), 50 (8.3%) species are represented by only historical (pre-1980) reports, and 28 (4.6%) of the latter were reported prior to, or at the beginning, of the 20th century. In other words, there are 28 taxa that appear not to have been documented from Belarus in nearly a century or more (Appendix I). Efforts to relocate extant populations of lichens known only from historical reports should prioritize these species. There are three additional species that were reported in the 1930's: *Collema nigrescens* (Krawiec 1938), *Nephromopsis ciliaris* (Tomin 1937) and *Usnea glabrata* (Yurchenko 2011). The last was reported based on herbarium specimen collected in 1939. Most species reported based on historical collections that have not been relocated in modern times are considered regionally extinct (RE). However, some other species that were formerly considered RE have been relocated in Belarus recently. These are *Heterodermia speciosa*, *Lecidea turgidula*, *Leptogium saturninum*, *Leptorhaphis atomaria*, *Mycomicrothelia melanospora*, *Ochrolechia microstictoides*, *Rinodina oxydata* and *Rinodina teichophila* (Bely & Golubkov 2009b, Yatsyna 2011a, 2011e, 2013a, 2015d, 2016c, 2017, Tsurykau 2017c). Thus, an absence of known modern occurrences does not *a priori* indicate that a given species is regionally extinct.

Of the species reported from Belarus, there are 11 that were reported from the region generally and without the citation of collection data for the supporting vouchers. These species are: *Diplotomma epipolium*, *Peltigera leucophlebia*, *Physcia clementei*, *Physconia muscigena*, *Polycauliona phlogina*, *Porpidia cinereoatra*, *Pyrenula coryli*, *Rinodina gennarii*, *Thelocarpon impressellum*, *Thrombium epigaeum*, *Variospora aurantia* (Golubkov & Yesis 1997b, Golubkov & Kobzar 2005, Kobzar 2006, Kondratyuk et al. 2004, Yurchenko 2011, Yatsyna & Merzhvinsky 2012). In addition to the above, there are several species that were published without specific location data. While these are included in the

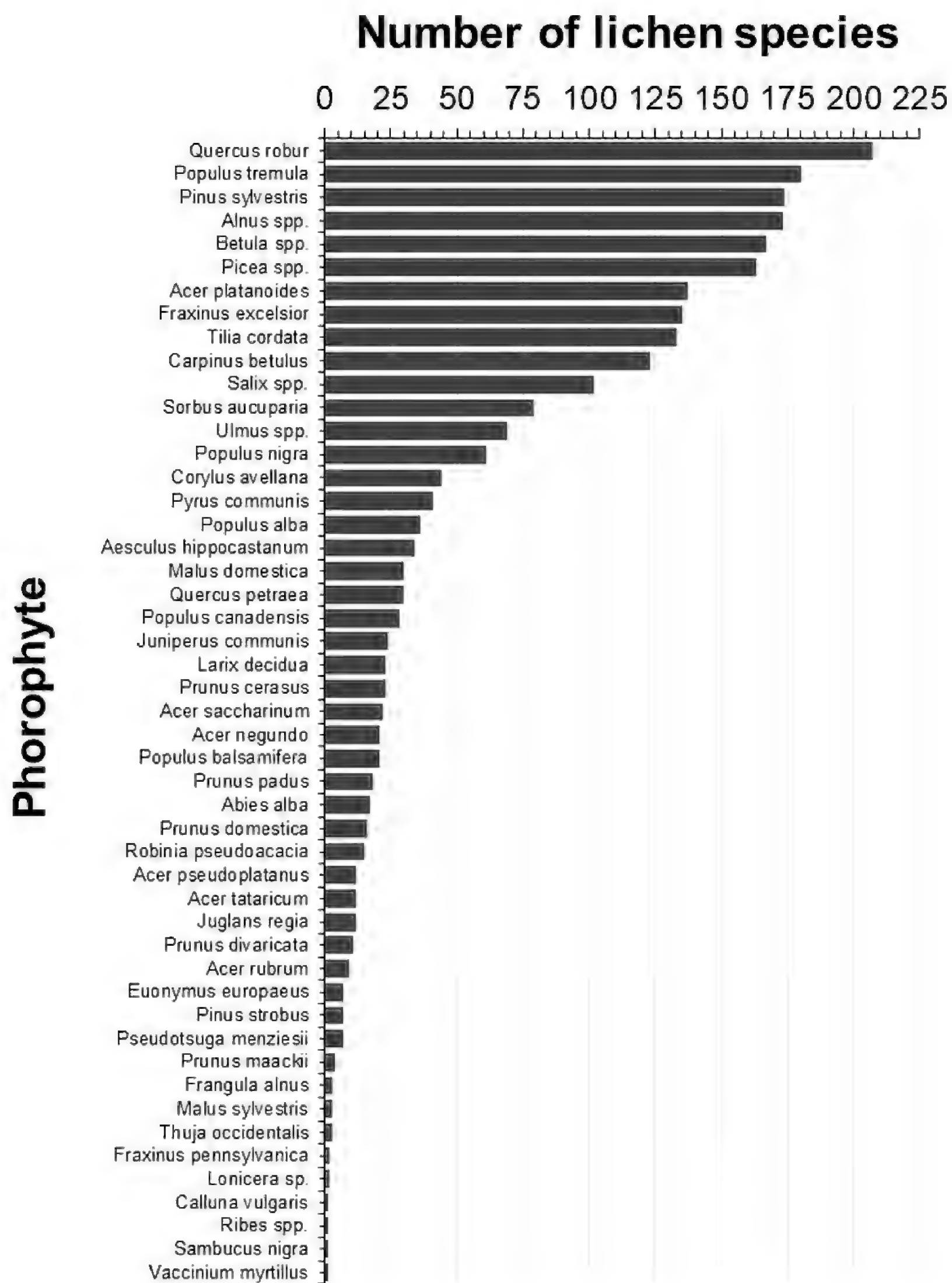


Figure 8. Total number of lichen species reported from each corticolous lichen substrate in Belarus.

checklist, further study is needed to confirm their occurrence and locate supporting vouchers. These include: *Arthonia incarnata*, *Bacidia incompta*, *Physconia muscigena*, *Polycauliona phlogina* and *Nephromopsis ciliaris* (Kondratyuk et al. 2004; Oksner 1968; Tomin 1937, 1956; Yatsyna & Merzhvinsky 2012). Until now, the occurrence of *Arctoparmelia centrifuga* has been unknown as no data were provided by Gorbach (1965d). The collection locality and substrate are provided here based on the specimen stored in GSU.

Approximately one-third of the species (169, 27.9%) reported from Belarus occur in all of the major political subdivisions of the country. Such relatively ubiquitous lichens include *Evernia prunastri*, *Hypogymnia physodes*, *Parmelia sulcata* and *Xanthoria parietina*. Interestingly, however, some of these also represent species treated as rare in the latest edition of the Red Data Book (Yatsyna 2015), namely *Cetrelia olivetorum*, *Lobaria pulmonaria*, *Menegazzia terebrata*, *Montanelia soledata* and *Usnea florida*. At least one additional widespread species, *Cetrelia monachorum*, has been recommended for protection by Bely et al. (2014). In contrast to the widespread species, approximately one-fourth of the species (149, 24.6%) have only been documented from a single region of the country. This includes species that have likely been extirpated and are known only from historical reports (e.g. *Nephroma arcticum*, *N. bellum*, *N. parile* and *N. resupinatum*). It also includes relatively recently described species that are likely more widespread, but have not been the subject of targeted search efforts in the field and herbarium (e.g. *Biatorea efflorescens*, *Catillaria croatica*, *Fuscidea arboricola*, *F. pusilla* and *Lecanora compallens*).

In terms of substrates, most species (406, 66.8%; Figure 7) are corticolous, while only approximately one-fourth (160, 26.2%) are saxicolous. Among the substrates for corticolous lichens, the richest lichen diversity in Belarus is found on *Quercus robur* (207 species), *Populus tremula* (180), *Pinus sylvestris* (174), *Alnus* spp. (173), *Betula* spp. (167) and *Picea* spp. (163) (Figure 8).

THE CHECKLIST

The checklist presented below is based on a compilation of published literature from which all records derived from the territory that is now Belarus published between 1781 and 2017 were indexed. These publications are individually cited throughout the list under the currently accepted name for each taxon. It should be noted that the publications cited under each entry are restricted to those that presented new records. In contrast, publications that referenced earlier reports are not included in the species entries. Each section of the checklist is arranged alphabetically by genus and species, and the checklist itself is divided into three sections: **i)** accepted taxa, **ii)** excluded taxa and taxa whose occurrence in the region is questionable, and **iii)** indexed synonyms that link earlier published reports to currently accepted names. Nomenclature follows Nordin et al. (2011) unless otherwise noted.

Allied fungi related to lichens or to lichenicolous fungi are denoted by an addition sign (+), and species of varying and/or uncertain biological status are denoted by a pound sign (#). Lichenicolous fungi are, as a general rule, not included here as an annotated checklist has already been published separately (Tsuryskau 2017a). However, the genus *Chaenothecopsis* which includes some lichenicolous species, is included in the present work. Any lichenicolous fungi included in the present list as denoted by an asterisk (*).

Geographic Abbreviations. – Within the entry for each taxon, published reports are organized by administrative regions and arranged alphabetically. Administrative regions are abbreviated as follows: **BR** = Brest, **GO** = Gomel, **GR** = Grodno, **MI** = Minsk, **MO** = Mogilev, **VI** = Vitebsk (see Figure 1).

Ecological and Substrate Abbreviations. – Within the entry for each taxon, the range of phorophytes reported for each species is listed following the compiled published reports. The substrates are abbreviated as follows: **cal** = concrete and other anthropogenic calcareous substrata, **cor** = corticolous, **fol** = foliicolous (on needles), **lig** = lignicolous, **res** = resinicolous, **roo** = roots of windthrows, **sil** = siliceous stones, **met** = metal, **mus** = muscicolous (over soil, bark, stone), **ter** = terricolous (including plant debris).

In addition to the aforementioned substrate classes, the corticolous substrates are further subdivided as follows:

Abi = <i>Abies alba</i>	Jug = <i>Juglans regia</i>	Pot = <i>Populus tremula</i>
Acd = <i>Acer pseudoplatanus</i>	Jun = <i>Juniperus communis</i>	Ppa = <i>Prunus padus</i>
Acn = <i>Acer negundo</i>	Lar = <i>Larix decidua</i>	Pse = <i>Pseudotsuga menziesii</i>
Acp = <i>Acer platanoides</i>	Lon = <i>Lonicera</i> sp.	Pyr = <i>Pyrus communis</i>
Acr = <i>Acer rubrum</i>	Mal = <i>Malus domestica</i>	Qup = <i>Quercus petraea</i>
Acs = <i>Acer saccharinum</i>	Mas = <i>Malus sylvestris</i>	Qur = <i>Quercus robur</i>
Act = <i>Acer tataricum</i>	Pce = <i>Prunus cerasus</i>	Rib = <i>Ribes</i> spp.
Ahi = <i>Aesculus hippocastanum</i>	Pdi = <i>Prunus divaricata</i>	Rob = <i>Robinia pseudoacacia</i>
Aln = <i>Alnus</i> spp.	Pdo = <i>Prunus domestica</i>	Sal = <i>Salix</i> spp.
Bet = <i>Betula</i> spp.	Pma = <i>Prunus maackii</i>	Sam = <i>Sambucus nigra</i>
Car = <i>Carpinus betulus</i>	Pic = <i>Picea</i> spp.	Sor = <i>Sorbus aucuparia</i>
Cav = <i>Calluna vulgaris</i>	Pin = <i>Pinus sylvestris</i>	Thu = <i>Thuja occidentalis</i>
Coa = <i>Corylus avellana</i>	Pis = <i>Pinus strobus</i>	Til = <i>Tilia cordata</i>
Euo = <i>Euonymus europaeus</i>	Poa = <i>Populus alba</i>	Ulm = <i>Ulmus</i> spp.
Fra = <i>Frangula alnus</i>	Pob = <i>Populus balsamifera</i>	Vac = <i>Vaccinium myrtillus</i>
Fre = <i>Fraxinus excelsior</i>	Poc = <i>Populus canadensis</i>	
Frp = <i>Fraxinus pennsylvanica</i>	Pon = <i>Populus nigra</i>	

1. **Absconditella lignicola** Vězda & Pišút – BR (Bely 2012a), MI (Yatsyna 2012d), VI (Yatsyna 2013f, 2017): cor, lig Aln, Pin.
2. **Acarospora fuscata** (Schr.) Arnold – GO (Savicz 1911, Golubkov & Vynaev 1981, Golubkov 2011), GR (Bachmann & Bachmann 1920, Yatsyna 2010g, 2016c), MI (Golubkov & Vynaev 1981, Golubkov 1997, Chernyshov 2003, Yatsyna 2005, 2010a, 2012c, 2013b, 2013c, 2014a, Yurchenko 2011, Yatsyna & Yurchenko 2013), MO (Yatsyna 2009b), VI (Kreyer 1913, Kobzar 1983, Golubkov 1992, 1997, Golubkov & Kobzar 2007, Yatsyna 2010c), no exact locality (Golubkov 1987): sil.
3. **Acarospora moenium** (Vain.) Räsänen – GO (Bely & Golubkov 2008, Golubkov 2011, Tsurykau & Khramchankova 2011a), GR (Bely & Golubkov 2008), VI (Bely & Golubkov 2008, Yatsyna 2013f): cal, sil.
4. **Acarospora oligospora** (Nyl.) Arnold – MI (Golubkov & Yesis 1997b, Chernyshov 2003), VI (Bachmann & Bachmann 1920): sil.
5. **Acarospora veronensis** A. Massal. – GO (Golubkov & Vynaev 1981), GR (Bachmann & Bachmann 1920), MI (Golubkov & Vynaev 1981), VI (Golubkov 1992, Golubkov & Kobzar 2007): sil.
6. **Acrocordia gemmata** (Ach.) A. Massal. – BR (Golubkov 1987, Yatsyna 2014d), GO (Gorbach 1973b, Golubkov 1992, Tsurykau & Khramchankova 2009b), GR (Golubkov 1987, Yatsyna 2016c), MI (Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Yatsyna 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c), MO (Yatsyna 2009b), VI (Golubkov 1992, Yatsyna 2010c, 2011a), no exact locality (Gorbach 1956, 1957, Golubkov 1992): cor, lig Acp, Aln, Car, Fre, Pic, Pon, Pot, Sal, Til, Qur, Ulm.
7. **Agonimia allobata** (Stizenb.) P. James – BR (Yatsyna 2015c), MI (Yatsyna 2014a, 2015c): cor Aln, Fre.
8. **Alyxoria varia** (Pers.) Ertz & Tehler – BR (Golubkov 1987, Yatsyna 2014d), GO (Savicz 1909, Wyssotzky et al. 1925, Golubkov 1992, Golubkov et al. 2007a, Tsurykau & Khramchankova 2009b, Bely 2011a), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2016c), MI (Bachmann & Bachmann 1920, Gorbach 1955, 1961, Golubkov & Yesis 1997a, Kobzar 2006, Yatsyna 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013), MO (Kobzar 2006, Yatsyna 2012a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Yatsyna 2010c, 2017), no exact locality (Tomin 1939, Gorbach 1956, 1957, 1962, 1973b, Golubkov 1992): cor, lig Acn, Acp, Aln, Bet, Car, Fre, Jun, Pot, Sor, Qup, Qur, Til, Ulm.

9. **Amandinea punctata** (Hoffm.) Coppins & Scheid. – BR (Golubkov 1987, Yatsyna 2014d), GO (Savicz 1910, Kreyer 1913, Wyssotzky et al. 1925, Golubkov 1992, 2011, Kravchuk 2000, 2001, Golubkov et al. 2007a, Tsurykau & Khramchankova 2009a, Bely 2011a), GR (Bachmann & Bachmann 1920, Golubkov 1987, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005, Yatsyna 2010g, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov & Yesis 1997a, Kravchuk 2001, Chernyshov 2003, Kobzar 2006, Yatsyna 2009d, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Kravchuk 2001, Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Kravchuk 2001, Yatsyna 2010c, 2011a, 2017), no exact locality (Gorbach 1956, 1957, Golubkov 1992): cal, cor, lig, sil Abi, Acp, Aln, Bet, Car, Coa, Fre, Lar, Pce, Pic, Pin, Pon, Pot, Ppa, Pyr, Qup, Qur, Sal, Sor, Til, Ulm.
10. **Anaptychia ciliaris** Körb. – BR (Krawiec 1938, Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Ges 1960, Lapitskaya et al. 1979, Golubkov 1992, 2011, Kravchuk 2000, Tsurykau 2005, Timoshenkova & Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, Tsurykau et al. 2009, Bely 2010a, 2011a, Yatsyna 2014d, Tsurykau & Tsurikova 2017), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Kravchuk 2001, Golubkov & Khartanovich 2004a, Yatsyna 2010g, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Kravchuk & Kakareka 1995, Kobzar 1997, Chernyshov 2003, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Kobzar 2006, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Downar 1861, Kreyer 1913, Savicz & Savicz 1924, Savicz 1925, Kravchuk 2001, Kobzar 2006, Yatsyna 2009b, 2012a, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov 1991, Kobzar 2006, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, Yatsyna 2009e): cor Acn, Acp, Aln, Bet, Car, Cav, Euo, Fre, Lar, Pic, Pin, Poa, Poc, Pon, Pot, Qur, Sal, Sor, Til, Ulm.
11. **Anisomeridium polypori** (Ellis & Everh.) M.E. Barr – MI (Yatsyna 2014a, 2015c): cor Aln, Fre.
12. **Arctoparmelia centrifuga** (L.) Hale – VI (Gorbach 1965d): sil. – Note: The distribution and substrate for the species are provided based on the data from GSU.
13. **Arthonia arthonioides** (Ach.) A.L. Sm. – MI (Yatsyna 2014a, 2015c), VI (Yatsyna 2017): cor Acp, Qur.
14. **Arthonia atra** (Pers.) A. Schneid. – GO (Gorbach 1973b, Golubkov & Vynaev 1981, Tsurykau & Khramchankova 2010b), GR (Golubkov 2014a), MI (Bachmann & Bachmann 1920, Golubkov & Vynaev 1981, Yatsyna & Stefanovich 2005, Yatsyna 2012b), VI (Gorbach & Mashenkova 1967), no exact locality (Tomin 1939, Gorbach 1956, 1957): cor Acp, Aln, Car, Fre, Qur.
15. **Arthonia cinereopruinosa** Schaer. – BR (Makarevich 1960), GR (Golubkov 1992), MI (Yatsyna & Yurchenko 2013, Yatsyna 2014a), MO (Yatsyna 2009b), VI (Yatsyna 2011a), no exact locality (Tomin 1956, Gorbach 1973b): cor Acp, Car, Coa, Qur.
16. **Arthonia dispersa** (Schröd.) Nyl. – GO (Tsurykau & Khramchankova 2009b, Golubkov 2011), GR (Bachmann & Bachmann 1920), MI (Kobzar 2006, Yatsyna & Yurchenko 2013, Yatsyna 2013b, 2015c), MO (Yatsyna 2012a), no exact locality (Gorbach 1973b): cor Acp, Car, Coa, Sor, Til, Pot. – Note: The report of *A. dispersa* by Golubkov & Vynaev (1981) seems to be doubtful based on the description and it is not included in the present list.
17. **Arthonia exilis** (Flörke) Anzi – GR (Makarevich 1960): cor Pic.
18. **Arthonia fuliginosa** (Schaer.) Flot. – GO (Tsurykau & Khramchankova 2009b): cor Fre.
19. **Arthonia incarnata** Th. Fr. ex Almq. – no exact locality (Tomin 1956): cor Qur.

20. **Arthonia patellulata** Nyl. – GR (Bachmann & Bachmann 1920, Makarevich 1960), no exact locality (Gorbach 1962): cor, lig Pot.
21. **Arthonia punctiformis** Ach. – BR (Golubkov 1987), GO (Savicz 1911), GR (Bachmann & Bachmann 1920, Golubkov 1987), MI (Gorbach 1955, Golubkov & Yesis 1997a), MO (Yatsyna 2009b), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov & Kobzar 2007, Yatsyna 2011a), no exact locality (Gorbach 1956, 1957): cor Aln, Bet, Car, Coa, Pot.
22. **Arthonia radiata** (Pers.) Ach. – BR (Krawiec 1938, Golubkov 1987, 2011, Yatsyna 2014d), GO (Savicz 1910, Golubkov & Vynaev 1981, Golubkov 1992), GR (Bachmann & Bachmann 1920, Golubkov 1987, Yatsyna 2010g), MI (Bachmann & Bachmann 1920, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov 1992, Kravchuk & Kakareka 1995, Yatsyna 2012b, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013), MO (Kobzar 2006, Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Yatsyna 2008, 2010c, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957): cor Acp, Aln, Bet, Car, Coa, Fre, Pot, Pyr, Qur, Sal, Sor, Til, Ulm.
23. **Arthonia spadicea** Leight. – BR (Golubkov 1987, Yatsyna 2014d), GO (Golubkov 1992), GR (Bachmann & Bachmann 1920, Makarevich 1960, Golubkov 1987, 1992, Yatsyna 2016c), MI (Golubkov 1992, Yatsyna 2014a, 2014b, 2015c), VI (Golubkov 1992, Yatsyna 2013f, 2017), no exact locality (Golubkov 1987): cor, lig Aln, Car, Coa, Fre, Pic, Pin, Pot, Qup, Qur, Til.
24. **Arthonia vinosa** Leight. – GR (Yatsyna 2016c): cor Qur.
25. **+Arthopyrenia analepta** (Ach.) A. Massal. – GO (Golubkov 2011), GR (Bachmann & Bachmann 1920): cor Aln, Qur.
26. **Arthopyrenia cerasi** (Schrad.) A. Massal. – GR (Bachmann & Bachmann 1920, Golubkov & Khartanovich 2005), VI (Yatsyna 2011a), no exact locality (Gorbach 1962): cor Coa, Pon, Qur, Til.
27. **Arthopyrenia grisea** (Schleich. ex Schaer.) Körb. – MI (Tomin 1956), VI (Yatsyna 2011a, Gapienko et al. 2014): cor Bet, Jug, Pot.
28. **Arthothelium ruanum** (A. Massal.) Körb. – BR (Golubkov 1987, Yatsyna 2014d), GO (Tsurykau & Khramchankova 2009b, Yatsyna 2012e), GR (Golubkov 1987, Yatsyna 2016c), MI (Golubkov & Vynaev 1981, Golubkov 1992, Yatsyna 2012b, 2012c, 2013b, 2014a, 2015c, 2017), VI (Golubkov 1992, Yatsyna 2010c): cor Aln, Bet, Car, Coa, Pot, Ulm.
29. **Arthrosporum populorum** A. Massal. – GO (Tsurykau & Khramchankova 2009b), GR (Kobzar 2006), MI (Yatsyna & Yurchenko 2013, Yatsyna 2014a), MO (Kreyer 1913), VI (Kreyer 1913): cor Coa, Poa, Pot, Poc, Sal.
30. **Aspicilia cinerea** (L.) Körb. – GO (Gorbach 1973b), GR (Bachmann & Bachmann 1920, Golubkov 1997, Yatsyna 2016c), MI (Oksner 1925, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1992, 1997, Yatsyna 2012c, Yatsyna & Yurchenko 2013), MO (Yatsyna 2009b), VI (Kreyer 1913, Golubkov 1992, 1997, Yatsyna 2010c): sil.
31. **Athallia cerinella** (Nyl.) Arup, Frödén & Söchting – BR (Yatsyna 2014d), GR (Golubkov 1987, Yatsyna 2010g, 2016c), MI (Golubkov & Yesis 1997a, Yatsyna 2010a, 2013b, 2013c, 2014a, 2014b, 2015c, Yurchenko 2011, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2009b), VI (Golubkov 1992, Yatsyna 2008, 2010c, 2011a, 2017, Bely & Golubkov 2009a), no exact locality (Gorbach 1962): cor, lig Mal, Pot, Til.
32. **Athallia cerinelloides** (Erichsen) Arup, Frödén & Söchting – MI (Bely 2011a): cor Pic.
33. **Athallia pyracea** (Ach.) Arup, Frödén & Söchting s. lat. – BR (Bely 2011a, Bely & Kudin 2016), GO (Savicz 1909, Wyssotzky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Kobzar 2006, Golubkov et al.

2007a, Tsurykau & Khranchankova 2010b, Bely 2010a, 2011a, Golubkov 2011, Sobchanka et al. 2012, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g), MI (Bachmann & Bachmann 1920, Gorbach 1955, Golubkov & Vynaev 1981, Kravchuk & Kakareka 1995, Chernyshov 2003, 2004a, Yatsyna 2005, 2012c, 2014a, 2015c, Kobzar 2006, Yurchenko 2011, Bely 2011a, Bely & Nikolaichuk 2012), MO (Savicz & Savicz 1924, Savicz 1925), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Yatsyna 2010c, Bely 2015b), no exact locality (Gorbach 1956, Makarevich 1960): cal, cor, lig, sil Acp, Aln, Ahi, Bet, Pic, Poa, Pot, Pyr, Sal, Sor, Til, Ulm. – Note: Although the majority of reports of *A. holocarpa* (Hoffm.) Arup, Frödén & Söchting from Belarus likely refer to *A. pyracea*, the supporting specimens should be reexamined to confirm that this is the case. It is possible that some of the reports cited here actually refer to other taxa.

34. **Bacidia arceutina** (Ach.) Arnold – MI (Bely 2011a), VI (Oksner 1968, Yatsyna 2017): cor Pic, Pot.
35. **Bacidia bagliettoana** (A. Massal. & De Not.) Jatta – GO (Savicz 1911, Tsurykau & Khranchankova 2009a), GR (Bely & Golubkov 2008, Yurchenko 2011), MI (Yatsyna 2010a, Golubkov et al. 2013), VI (Bely & Golubkov 2008): mus, ter.
36. **Bacidia biatorina** (Körb.) Vain. – MI (Kobzar 2006, Yatsyna 2013b): cor Pic, Til.
37. **Bacidia circumspecta** (Nyl. ex Vain.) Malme – VI (Kreyer 1913): mus, ter.
38. **Bacidia fraxinea** Lönnr. – GO (Tsurykau 2017c): cor Qur.
39. **Bacidia friesiana** (Hepp) Körb. – MI (Bachmann & Bachmann 1920): cor Pin.
40. **Bacidia herbarum** (Stizenb.) Arnold – GO (Golubkov 2011), VI (Kreyer 1913): cor, lig, mus Pot.
41. **Bacidia igniarii** (Nyl.) Oksner – GO (Savicz 1911): cor Aln.
42. **Bacidia incompta** (Borrer ex Hook.) Anzi – no exact locality (Oksner 1968): not indicated. – Note: The report of this species by Yatsyna (2012b) seems to be erroneous because the species was not also listed in later papers (e.g. Yatsyna 2013b, 2014a).
43. **Bacidia laurocerasi** (Delise ex Duby) Zahlbr. – GO (Tsurykau & Khranchankova 2009b), MI (Gorbach 1965c, Yatsyna 2013b, Yatsyna & Yurchenko 2013), MO (Yatsyna 2009b), VI (Kreyer 1913, Yatsyna 2011e): cor Fre, Pot.
44. **Bacidia polychroa** (Th. Fr.) Körb. – GO (Kobzar 2006, Yurchenko 2011), MI (Gorbach 1965c), MO (Kobzar 2006), VI (Kreyer 1913, Yatsyna 2010c): cor Acp, Fre, Pic, Pot, Til.
45. **Bacidia rubella** (Hoffm.) A. Massal. – BR (Golubkov 1987, Kobzar 2006, Yatsyna 2014d), GO (Ljubitzkaja 1914, Wyssotzky et al. 1925, Ges 1960, Golubkov 1987, 1992, 2011), GR (Golubkov 1987, 1992, 2014a, Yatsyna 2010g, 2016c), MI (Golubkov & Vynaev 1981, Golubkov 1992, Yatsyna 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Kobzar 2006, Yatsyna 2009b, 2012a), VI (Kreyer 1913, Golubkov 1992, Kobzar 2006, Yatsyna 2010c, 2017, Bely 2011a), no exact locality (Makarevich 1960): cor Acp, Aln, Car, Fre, Pot, Qup, Qur, Sal, Til, Thu, Ulm.
46. **Bacidia subincompta** (Nyl.) Arnold – BR (Yatsyna 2014d), GO (Golubkov 2007), GR (Yatsyna 2016c), MI (Yatsyna 2013b, 2013c, 2014a, 2014b, 2015c), VI (Golubkov 1992, Yatsyna 2013f): cor Acp, Fre, Qur, Til.
47. **Bacidia vermifera** (Nyl.) Th. Fr. – GO (Savicz 1909), VI (Yurchenko 2011): cor Bet, Pot.
48. **Bacidina arnoldiana** (Körb.) V. Wirth & Vězda – BR (Yatsyna 2014d), MI (Yatsyna 2014a, 2015c), VI (Insarov & Pchelkin 1982, Bely 2011a, Yatsyna 2013f, 2017): cor Acp, Aln, Bet, Car, Fre, Pot, Qur.

49. **Bacidina assulata** (Körb.) S. Ekman – BR (Makarevich 1960): cor Fre.
50. **Bacidina chlorotricula** (Nyl.) Vězda & Poelt – MI (Yatsyna 2015c), VI (Yatsyna 2013f): cor, sil Aln.
51. **Bacidina delicata** (Leight.) V. Wirth & Vězda – MI (Yatsyna 2012d): cor Aln.
52. **Bacidina egenula** (Nyl.) Vězda – VI (Yatsyna & Motiejūnaite 2015): cor Aln.
53. **Bacidina inundata** (Fr.) Vězda – MI (Golubkov & Vynaev 1981, Chernyshov 2004a), VI (Kreyer 1913, Golubkov 1992, Yatsyna 2013f, 2017): sil.
54. **Bacidina phacodes** (Körb.) Vězda – BR (Golubkov 1987), GO (Golubkov 2011), GR (Bachmann & Bachmann 1920), MI (Kobzar 2006), MO (Bely 2011a), VI (Kreyer 1913, Yatsyna 2017), no exact locality (Yatsyna 2009e): cor, lig, roo Aln, Pic, Pot, Qur.
55. **Bacidina sulphurella** (Samp.) M. Hauck & V. Wirth – VI (Yatsyna 2013f): cor Aln.
56. **Bactrospora dryina** (Ach.) A. Massal. – BR (Yatsyna 2014d), GO (Yatsyna 2011e), GR (Yatsyna 2016c), MI (Yatsyna 2015c), MO (Yatsyna 2011e), VI (Yatsyna 2011e): cor Acp, Qur, Til.
57. **Baeomyces rufus** (Huds.) Rebent. – BR (Krawiec 1938, Golubkov 1987, Yatsyna 2010b), GO (Golubkov & Vynaev 1981, Golubkov 1992, 2011, 2014a, Bely 2010a), GR (Yatsyna 2010b, 2010g), MI (Gorbach 1965d, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna 2010a, 2010b, 2010h, Bely 2010c), MO (Yatsyna 2009b, 2010b), VI (Kreyer 1913, Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010b, 2010c, 2010d, 2011a, 2017, Bely 2015b), no exact locality (Golubkov 1992): sil, ter.
58. **Biatora areolata** Kreyer – GO (Golubkov 2011), MI (Gorbach 1955), VI (Kreyer 1913, Insarov & Pchelkin 1982, Kobzar 2006): cor Aln, Pic, Pot, Qur, Sor.
59. **Biatora beckhausii** (Körb.) Tuck. – GR (Bachmann & Bachmann 1920), MI (Chernyshov 2004a), VI (Golubkov 1992): cor Jun, Pic, Pot.
60. **Biatora globulosa** (Flörke) Fr. – BR (Golubkov 1987), GO (Golubkov & Vynaev 1981), GR (Bachmann & Bachmann 1920, Golubkov 1987, Yatsyna 2016c), MI (Tomin 1939, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov 1992, Yatsyna 2005, Golubkov et al. 2013), VI (Kreyer 1913, Gorbach & Mashenkova 1967): cor, lig Acp, Bet, Pic, Pin, Pot, Qur, Sal, Ulm. – Note: The report from the Gomel region by Golubkov (1992) may be erroneous because the species was not also included in subsequent papers (e.g. Golubkov 2011). That report is not included in the present list.
61. **Biatora efflorescens** (Hedl.) Räsänen – GO (Tsuryskau 2017a): cor Pin.
62. **Biatora epixanthoides** (Nyl.) Diederich – VI (Yatsyna 2017): cor Pot.
63. **Biatora ocelliformis** (Nyl.) Arnold – MO (Yatsyna & Motiejūnaite 2015), VI (Kreyer 1913): cor Car, Pic.
64. **Biatora vernalis** (L.) Fr. – GR (Bachmann & Bachmann 1920), MI (Golubkov & Vynaev 1981, Yatsyna 2010a), VI (Yatsyna 2008): cor Coa, Fre, Pot, Til.
65. **Biatoridium monasteriense** J. Lahm ex Körb. – MI (Yatsyna 2014a): cor Fre.
66. **Bilimbia sabuletorum** (Schreb.) Arnold – GR (Yatsyna 2016c), MI (Yatsyna 2010a, 2012b, 2013b, 2013c), VI (Kreyer 1913, Bachmann & Bachmann 1920, Yatsyna 2010c, 2010d): mus, on Peltigera canina.
67. **Blastenia crenularia** (With.) Arup, Søchting & Frödén – VI (Kreyer 1913): sil.

68. **Blastenia ferruginea** (Huds.) Th. Fr. – GO (Golubkov 2007), GR (Bachmann & Bachmann 1920, Golubkov & Khartanovich 2004b), MI (Golubkov & Vynaev 1981, Golubkov 1992): cor Pic, Sor. – Note: The report on calcareous stone by Golubkov et al. (2013) seems to be doubtful based on the substrate and so is not included in the present list. The material that served as the basis of the report should be reexamined to determine its taxonomic status.
69. **Blastenia herbidella** (Hue) Servit – MI (Kondratyuk et al. 2013): cor Til.
70. **Blennothallia crispa** (Huds.) Otálora, P.M. Jørg. & Wedin – GR (Gilibert 1781, 1792): not indicated.
71. **Brianaria sylvicola** (Flot. ex Körb.) S. Ekman & M. Svensson – MI (Chernyshov 2003), VI (Kreyer 1913): sil.
72. **Brianaria tuberculata** (Sommerf.) S. Ekman & M. Svensson – GO (Savicz 1911): sil.
73. **Bryobilimbia hypnorum** (Lib.) Fryday, Printzen & S. Ekman – GO (Danilchuk et al. 1976): cor Fre.
74. **Bryobilimbia sanguineoatra** (Wulfen) Fryday, Printzen & S. Ekman – MI (Bachmann & Bachmann 1920): ter. – Note: This species is included here based on the report by Bachmann and Bachmann (1920). Previously, this report was treated as referring to *Mycobilimbia hypnorum* (Lib.) Kalb & Hafellner by Yurchenko (2011) and Yatsyna & Merzhvinsky (2012). However Bachmann and Bachmann (1920) noted specifically that their specimen perfectly match the material identified by Arnold. Arnold's material has now been designated as a neotype for *Lichen sanguineoater* Wulfen (Fryday et al. 2014).
75. **Bryoria capillaris** (Ach.) Brodo & D. Hawksw. – BR (Gorbach 1965a, 1973b, Bely 2011a, Yatsyna 2013a), GO (Golubkov & Vynaev 1981, Golubkov 2011), GR (Kobzar 2006, Golubkov 2014a), MI (Oksner 1924, Gorbach 1965a, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Bely 2012c, Yatsyna 2013a), MO (Kobzar 2006), VI (Gorbach 1965a, 1978, Gorbach & Mashenkova 1967, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2010c, 2010f, 2013a, 2017, Bely 2011a), no exact locality (Golubkov 1992): cor Aln, Bet, Jun, Pic, Pin, Pon.
76. **Bryoria chalybeiformis** (L.) Brodo & D. Hawksw. – VI (Golubkov 2009a): sil.
77. **Bryoria furcellata** (Fr.) Brodo & D. Hawksw. – BR (Gorbach 1973b), GO (Kravchuk 2000, Golubkov 2011), VI (Gorbach 1965a, Gorbach & Mashenkova 1967, Golubkov & Kobzar 2007): cor Bet, Pin.
78. **Bryoria fuscescens** (Gyeln.) Brodo & D. Hawksw. – BR (Golubkov 1987), GO (Savicz 1910, Golubkov & Vynaev 1981, Kobzar 2006), GR (Gilibert 1781, 1792, Golubkov 1987, 2014a, Yatsyna 2013a, 2016c), MI (Gorbach 1955, 1961, Golubkov & Vynaev 1981, Kobzar 2006, Yurchenko 2011, Yatsyna & Yurchenko 2013, Yatsyna 2013a, 2014a, 2015c), MO (Kreyer 1913, Kobzar 2006, Yatsyna 2009b), VI (Kreyer 1913, Gorbach 1965a, Gorbach & Mashenkova 1967, Insarov & Pchelkin 1982, Golubkov 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010f, 2011a, 2017), no exact locality (Gorbach 1956, 1957): cor Acp, Aln, Bet, Pic, Pin, Pot, Qup, Qur, Sal, Til.
79. **Bryoria implexa** (Hoffm.) Brodo & D. Hawksw. – BR (Tessendorff 1922, Krawiec 1938, Gorbach 1965a, 1973b, Yatsyna 2013a), GO (Savicz 1910, Ges 1960, Golubkov 1992), GR (Bachmann & Bachmann 1920, Kobzar 2006, Bely 2011a), MI (Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, Golubkov 1992, Yatsyna 2006a, Bely 2011a), MO (Kreyer 1913, Savicz 1925), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1965a, 1973b, Golubkov & Kobzar 2007, Yatsyna 2009a, Yurchenko 2011), no exact locality (Gorbach 1956, 1957, Golubkov & Kobzar 2005): cor, ter Bet, Car, Pic, Pin, Qur. – Note: Records of *B. mirabilis* (Motyka) Bystrek and *B. motykana* (Bystrek) Bystrek (cited as *B. motycii* Bystrek nom. inval. in the literature) are treated as *B. implexa* (Hoffm.) Brodo & D. Hawksw. based on Lisická (2005).

80. **Bryoria nadvornikiana** (Gyeln.) Brodo & D. Hawksw. – GO (Golubkov 1992, Yurchenko 2011), GR (Golubkov 1987), MI (Golubkov 1987), VI (Yatsyna 2008, 2013a, Yurchenko 2011): cor Bet, Pic, Pin, Qur.
81. **#Buellia badia** (Fr.) A. Massal. – GO (Gorbach & Osmolovskaya 1965), GR (Golubkov 1993), MI (Golubkov 1993), VI (Golubkov 1993): sil.
82. **Buellia disciformis** (Fr.) Mudd – BR (Golubkov 1987), GO (Savicz 1911, Wysotsky et al. 1925, Golubkov 1992), GR (Bachmann & Bachmann 1920), MI (Bachmann & Bachmann 1920, Gorbach 1955, Yatsyna 2012b, 2013b), MO (Yatsyna 2009b), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Insarov & Pchelkin 1982, Kobzar 2006, Yatsyna 2009a), no exact locality (Gorbach 1957, Bely 2013): cor Acp, Aln, Bet, Pic, Pin, Pot, Qur, Til.
83. **Buellia geophila** (Flörke ex Sommerf.) Lynge – MI (Gorbach 1955, Golubkov & Vynaev 1981), no exact locality (Bachmann & Bachmann 1920, Tomin 1956): cor Aln, Fre.
84. **Buellia griseovirens** (Turner & Borrer ex Sm.) Almb. – BR (Yatsyna 2013a, 2014d), GO (Bely 2011a, Tsurykau 2013a, Tsurykau & Khranchankova 2015, Tsurykau & Tsurikova 2017), GR (Yatsyna 2016c), MI (Yatsyna 2009d, 2012b, 2013b, 2015c, Bely 2011a), VI (Golubkov 1993, Bely 2011a, Yatsyna 2011e, 2013a, 2017, Gapienko et al. 2014): cor, lig Aln, Fre, Pin, Qur.
85. **Buellia schaeferi** De Not. – BR (Golubkov 1987), GO (Golubkov 2007), MI (Yatsyna 2012b, 2013b), MO (Kobzar 2006, Yatsyna 2009b), VI (Kreyer 1913, Yatsyna 2011a, 2011e): cor, lig Aln, Bet, Pin, Pot, Qur, Til.
86. **Byssoloma subdiscordans** (Nyl.) P. James – MO (Savicz & Savicz 1924): fol Pic.
87. **Caeruleum heppii** (Nägeli ex Körb.) K. Knudsen & L. Arcadia – MI (Golubkov & Vynaev 1981): not indicated.
88. **Calicium abietinum** Pers. – BR (Golubkov 1987, Yurchenko 2011), GO (Golubkov & Vynaev 1981, Golubkov 1987), GR (Golubkov 1987, 1992), MI (Bachmann & Bachmann 1920, Golubkov & Vynaev 1981, Golubkov 1987, 1992, Yatsyna 2009d, 2014a), VI (Golubkov 1987, 1991, 1992, Golubkov & Kobzar 2007, Yatsyna 2010f, Bely 2011a), no exact locality (Gorbach 1962, Golubkov & Titov 1990): cor, lig Car, Pic, Pin, Qur. – The report of this species by Kreyer (1913) is erroneous based on the small reported ascospore size ($7.8\text{--}10.4 \times 5.2\text{--}5.8 \mu\text{m}$). It likely refers to *C. glaucellum* (e.g., Tibell 1999). However the material that served as the basis of the report should be reexamined to determine its true taxonomic status and so the report is not included in the present list.
89. **Calicium adpersum** Pers. – BR (Golubkov 1987), GO (Golubkov 1987, 1992), GR (Golubkov 1987), MO (Yatsyna 2009b): cor, lig Pin, Qur.
90. **Calicium glaucellum** Ach. – BR (Golubkov 1987, Yurchenko 2011), GO (Tsurykau & Khranchankova 2011a, Golubkov 2011), GR (Golubkov 1987), VI (Golubkov & Kobzar 2007, Yatsyna 2010f, 2017): cor, lig Car, Pic, Pin, Qur.
91. **Calicium lenticulare** Ach. – BR (Golubkov & Titov 1990), GO (Golubkov 1992): lig Qur.
92. **Calicium parvum** Tibell – GO (Tsurykau 2017c): cor Pin.
93. **Calicium quercinum** Pers. – GR (Yatsyna 2013d), no exact locality (Tomin 1939): cor, lig Acp.
94. **Calicium salicinum** Pers. – BR (Golubkov 1987), GO (Golubkov & Vynaev 1981, Golubkov 1987, 1992, 2011), GR (Golubkov 1987, 2014a), MI (Golubkov 1987), VI (Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2011e), no exact locality (Tomin 1956, Golubkov 1992): cor, lig Acp, Aln, Car, Pin, Qup, Qur.

95. **Calicium trabinellum** (Ach.) Ach. – BR (Yatsyna 2013a, 2014d), GO (Golubkov 1992, 2007, 2011), GR (Golubkov 1987, 1992, 2014a), MI (Bachmann & Bachmann 1920, Golubkov 1987, 1992, Yatsyna 2009d), VI (Golubkov 1987, 1991, 1992, Golubkov & Kobzar 2007, Yatsyna 2010f, 2013f), no exact locality (Gorbach 1962, Golubkov 1992): cor, lig Aln, Pin, Qur.
96. **Calicium viride** Pers. – BR (Golubkov 1987, Bely 2011a, Yatsyna 2014d), GO (Golubkov 1992, 2007, 2011), GR (Bachmann & Bachmann 1920, Golubkov 1992, 2014a, Bely 2011a, Yatsyna 2016c), MI (Golubkov & Vynaev 1981, Kobzar 2006, Yatsyna 2005, 2013b, 2013c, 2014a, 2015c, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Kobzar 2006, Yatsyna 2009b, 2011c), VI (Kreyer 1913, Golubkov 1992, Yatsyna 2010c, 2017), no exact locality (Gorbach 1973b, Golubkov 1992): cor, lig Acp, Aln, Bet, Fre, Lar, Pic, Pin, Qur, Sal, Til.
97. **Calogaya lobulata** (Flörke) Arup, Frödén & Söchting – MI (Tomin 1956, Yatsyna & Stefanovich 2005, Yatsyna 2005): cal.
98. **Calogaya pusilla** (A. Massal.) Arup, Frödén & Söchting – BR (Golubkov 1987, Yatsyna 2012f, 2014d), GO (Savicz 1909, Golubkov 1992, 2011, Golubkov et al. 2007a, Tsuryskau & Khramchankova 2007, 2009a, Sobchanka et al. 2012, Yatsyna 2012f, Tsuryskau & Tsurikova 2017), GR (Golubkov 1987, Yatsyna 2010g, 2016c, 2012f, Yurchenko 2011), MI (Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, 2004c, Yatsyna 2005, 2010a, 2012b, 2012c, 2012f, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Yatsyna 2009b, 2012f), VI (Kreyer 1913, Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2012f, Yurchenko 2011), no exact locality (Gorbach 1973b, Golubkov 1987, 1992): cal, cor, sil Acp, Til.
99. **Caloplaca albolutescens** (Nyl.) H. Olivier – VI (Yatsyna 2013f): cal.
100. **Caloplaca cerina** (Ehrh. ex Hedw.) Th. Fr. – BR (Suza 1928, Golubkov 1987, Bely & Kudin 2016), GO (Savicz 1909, 1911, Wyssotzky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Kravchuk 2001, Golubkov et al. 2007a, Tsuryskau & Khramchankova 2007, 2009a, Tsuryskau et al. 2009, Bely 2010a, Sobchanka et al. 2012, Yatsyna 2014d), GR (Bachmann & Bachmann 1920, Yatsyna 2010g, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Kobzar 1997, Kravchuk 2001, Chernyshov 2004a, Yatsyna 2005, 2010a, 2013b, 2014a, 2015c, Yatsyna & Yurchenko 2013), MO (Savicz & Savicz 1924, Savicz 1925, Kravchuk 2001, Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Yatsyna 2008, 2011a, 2013a, 2017, Bely 2011a), no exact locality (Gorbach 1956, Yatsyna 2009e): cor, lig Acp, Aln, Bet, Pin, Poc, Pon, Pot, Pyr, Qur, Sal, Sor.
101. **Caloplaca chlorina** (Flot.) H. Olivier – VI (Bachmann & Bachmann 1920): sil.
102. **Caloplaca obscurella** (J. Lahm) Th. Fr. – MI (Bachmann & Bachmann 1920): cor Pot.
103. **Caloplaca saxicola** (Hoffm.) Nordin – BR (Bely & Golubkov 2009a, Bely 2011b, Yatsyna 2012f, 2014d), GO (Tsuryskau & Khramchankova 2009a, Yatsyna 2012e), GR (Golubkov 1993, Bely & Golubkov 2009a, Yatsyna 2010g, 2012f), MI (Golubkov 1993, Yatsyna 2010a, 2012b, 2012c, 2012f, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Yatsyna 2009b, 2012f), VI (Golubkov 1996, Yatsyna 2008, 2010c, 2011a, 2012f, Bely & Golubkov 2009a): cal, sil.
104. **Candelaria concolor** (Dicks.) Arnold – GO (Tsuryskau 2017c), MI (Yatsyna 2013b, 2013c, 2014a): cor Fre, Til. – Note that *C. conolor* and *C. pacifica* were previously confused in Belarus and thus only reports after Yatsyna (2013b, 2013c) are included here. Earlier reports could refer to either species and the supporting vouchers need to be reexamined.

105. **Candelaria pacifica** M. Westb. & Arup – GO (Tsurykau & Khramchankova 2011a), GR (Yatsyna 2016c), MI (Bely 2013, Yatsyna 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013): cor Acp, Bet, Fre, Lar, Qur, Rob, Sor, Til.
106. **Candelariella aurella** (Hoffm.) Zahlbr. – BR (Golubkov 1987, Bely 2011a, Bely & Kudin 2016), GO (Savicz 1911, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2009a, Bely 2010a, 2016a, Golubkov 2011, Sobchanka et al. 2012, Tsurykau & Tsurikova 2017), GR (Yatsyna 2010g, 2013a, 2016c), MI (Gorbach 1955, Kobzar 2006, Yatsyna 2007a, 2010a, 2012b, 2012c, 2013b, 2013c, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Yatsyna 2009b, 2013a), VI (Gorbach 1973b, Golubkov 1992, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Bely 2015b), no exact locality (Gorbach 1957): cal, cor, sil, lig Acp, Ahi, Fre, Pon, Pot, Qur, Til, Ulm.
107. **Candelariella coralliza** (Nyl.) H. Magn. – BR (Yatsyna 2013f), GR (Yatsyna 2013f, 2016c), MI (Yatsyna & Golubkov 2009, Yatsyna 2010h), VI (Yatsyna 2013f): sil.
108. **Candelariella reflexa** (Nyl.) Lettau – BR (Yatsyna 2014d), MI (Yatsyna & Golubkov 2009): cor Aln, Mal.
109. **Candelariella vitellina** (Hoffm.) Müll. Arg. – BR (Suza 1928), GO (Savicz 1909, Wyssotzky et al. 1925, Golubkov 1992, 2011, Golubkov et al. 2007a, Tsurykau & Khramchankova 2009a, Bely 2011a, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 1997, 2014a, Golubkov & Khartanovich 2004a, 2004b, 2005, Yatsyna 2010g, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov 1992, 1997, Kravchuk & Kakareka 1995, Yurchenko & Golubkov 2003, Chernyshov 2003, 2004a, Yatsyna 2005, 2009d, 2010a, 2013b, 2013c, 2015c, Yurchenko 2011, Bely 2011a, 2012c, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Savicz 1925, Yatsyna 2009b, 2012a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Yatsyna 2008, 2010c, Bely 2015b), no exact locality (Gorbach 1956, 1957, 1962): cal, cor, lig, sil Acp, Bet, Car, Fre, Lar, Pic, Pin, Pot, Pon, Ppa, Pse, Pyr, Qur, Sal, Sor, Til.
110. **Candelariella xanthostigma** (Ach.) Lettau – BR (Golubkov 1987, Yatsyna 2014d), GO (Savicz 1911, Kreyer 1913, Kravchuk 2001, Tsurykau & Khramchankova 2009a, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, Yatsyna 2016c), MI (Bachmann & Bachmann 1920, Kravchuk 2001, Mavrishev & Dyukova 2008a, Yatsyna 2009d, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2011a, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Kravchuk 2001, Yatsyna 2009b), VI (Kreyer 1913, Kravchuk 2001, Bely & Golubkov 2008, Yatsyna 2010c, 2010d, 2011a, 2017, Gapienko et al. 2014), no exact locality (Golubkov 1992): cal, cor, lig, sil Acp, Bet, Fre, Pic, Pis, Pon, Pot, Qur, Sal, Til, Ulm.
111. **Carbonicola anthracophila** (Nyl.) Bendiksby & Timdal – MO (Yatsyna 2012a), GO (Tsurykau 2017c): cor, lig Pin.
112. **Carbonicola myrmecina** (Ach.) Bendiksby & Timdal – GR (Yatsyna 2016c), VI (Yatsyna 2017): cor Bet, Pic, Pis.
113. **Catapyrenium cinereum** (Pers.) Körb. – GR (Yatsyna 2015d), MI (Golubkov & Kobzar 2005, Yurchenko 2011), VI (Yatsyna 2010d): cal, ter.
114. **Catillaria croatica** Zahlbr. – GO (Tsurykau 2017a): cor Car, Coa, Pot.
115. **Catillaria nigroclavata** (Nyl.) Schuler – GO (Tsurykau & Khramchankova 2009a), MI (Bely 2010c), VI (Yatsyna 2011e), no exact locality (Tomin 1939): cor, lig Pic, Poc. – Note: The substrates in this entry were obtained from the data associated with the vouchers at GSU.
116. **Catinaria atropurpurea** (Schaer.) Vězda & Poelt – BR (Golubkov 1987, Bely 2011a, Bely & Kudin 2016), GO (Savicz 1911, Golubkov 1992, Golubkov et al. 2007a, Bely 2010a, 2011a), MI (Bely 2011a, Yatsyna & Yurchenko 2013, Yatsyna 2014a), MO (Bely 2011a), VI (Kobzar 2006, Yatsyna 2011a, Bely 2015b): cor, lig Coa, Pin, Pot, Qur, Til, Ulm.

117. **Cetraria aculeata** (Schreb.) Fr. – BR (Golubkov 1986, Yatsyna 2013a), GO (Yatsyna 2013a), GR (Błoński 1889, Bachmann & Bachmann 1920, Golubkov 1986, 1987, 2011, 2014a, Yatsyna 2013a), MI (Bachmann & Bachmann 1920, Golubkov 1987, Golubkov & Yesis 1997a, Yatsyna 2010a, 2013a), VI (Golubkov 1986, 1987, Golubkov & Kobzar 2007, Yatsyna 2010c), no exact locality (Golubkov 1992, 1998, Yatsyna 2009e, Bely 2015a): ter.
118. **Cetraria ericetorum** Opiz – BR (Golubkov 1987, Yurchenko 2011, Yatsyna 2013a), GO (Gorbach 1973b, Golubkov 1987, Tsuryskau 2005, Golubkov 2007, Yatsyna 2013a, Tsuryskau et al. 2013b), GR (Bachmann & Bachmann 1920, Yatsyna 2009e, 2013a, Yurchenko 2011, Golubkov 2014a), MI (Savicz & Savicz 1924, Savicz 1925, Golubkov & Vynaev 1981, Yatsyna 2010a, 2013a), MO (Kreyer 1913, Yatsyna 2009b), VI (Kreyer 1913, Ges 1961, Gorbach & Mashenkova 1967, Golubkov 1992, Yatsyna 2008, 2010a, 2013a, Bely 2011a), no exact locality (Golubkov 1998): ter.
119. **Cetraria islandica** (L.) Ach. – BR (Golubkov 1987, Golubkov et al. 2012), GO (Palamarchuk et al. 1973, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Tsuryskau 2005, Golubkov 2007, 2011, Tsuryskau et al. 2009, 2013b, Golubkov et al. 2012, Yatsyna 2014d, Tsuryskau & Tsurikova 2017), GR (Gilibert 1792, Bachmann & Bachmann 1920, Yatsyna 2010g, Golubkov et al. 2012, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna & Stefanovich 2005, Yatsyna 2010a, Yurchenko 2011, Golubkov et al. 2012), MO (Downar 1861, Kreyer 1913, Savicz 1914, Yatsyna 2009b, Golubkov et al. 2012), VI (Kreyer 1913, Bachmann & Bachmann 1920, Ges 1961, Gorbach & Mashenkova 1967, Scherbakova 1982, Golubkov 1991, Golubkov & Kobzar 1996, 2007, Yatsyna 2008, 2010a, 2011a, Bely & Golubkov 2008, Bely 2011a, Golubkov et al. 2012), no exact locality (Gorbach 1973b, Golubkov 1998, Kobzar 1998, Yatsyna 2009e): ter.
120. **Cetraria muricata** (Ach.) Eckfeldt – BR (Golubkov 1993), GR (Golubkov 1993), MI (Golubkov 1993): ter.
121. **Cetraria pinastri** (Scop.) Gray – BR (Golubkov 1987, Yatsyna 2013a, Bely 2016a, Bely & Kudin 2016), GO (Savicz 1909, Wyssotzky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Kravchuk 2001, Kobzar 2006, Golubkov et al. 2007a, Tsuryskau & Khramchankova 2007, 2008, 2015, Tsuryskau et al. 2009, 2012b, Golubkov 2011, Bely 2011a, Tsurikova 2013, Yatsyna 2014d, Tsuryskau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Gorbach & Getko 1978, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov 1992, Kobzar 1997, Kravchuk 2001, Chernyshov 2003, Yatsyna 2005, 2009d, 2010a, Kobzar 2006, Bely 2010c, 2011a, Yurchenko 2011, Yatsyna & Yurchenko 2013), MO (Savicz & Savicz 1924, Savicz 1925, Yatsyna 2004, 2009b, 2013a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1965d, 1978, Gorbach & Mashenkova 1967, Golubkov 1991, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010f, 2011a, 2013a, 2017, Yurchenko 2011, Bely 2011a), no exact locality (Gorbach 1957, Belomesyatseva 2004, Yatsyna 2009e): cor, lig, sil Acp, Aln, Bet, Fre, Jun, Pic, Pin, Pon, Pot, Qur, Sal, Sor, Til.
122. **Cetraria sepincola** (Ehrh.) Ach. – BR (Krawiec 1938, Golubkov 1987, Yatsyna 2011b), GO (Wyssotzky et al. 1925, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Tsuryskau 2005, Golubkov et al. 2007a, Tsuryskau & Khramchankova 2008, 2015, Yatsyna 2011b, Golubkov 2011, Bely 2011a, Tsurikova 2013), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2009e, 2010g, 2011b, 2016c), MI (Bachmann & Bachmann 1920, Oksner 1924, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna & Stefanovich 2005, Yatsyna 2005, 2010a, 2011b, 2015c, Bely 2010c, 2011a, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2004, 2009b, 2011b), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov & Kobzar 2007, Yatsyna 2008, 2009e, 2010c, 2010d, 2010f, 2011a, 2017, Bely 2011a): cor, lig, sil Acp, Aln, Bet, Jun, Mal, Pce, Pin, Pot, Pyr, Qur, Sal, Sor, Til.
123. **Cetrelia cetrarioides** (Delise) W.L. Culb. & C.F. Culb. – BR (Bely et al. 2014), GR (Bely et al. 2014), MI (Bely et al. 2014), MO (Bely et al. 2014), VI (Bely 2011a, Bely et al. 2014): cor Aln, Bet, Car, Jun, Pot, Qur. – Note: Only records of *C. cetrarioides* published with TLC data are included here as the species

cannot be distinguished from *C. monachorum* without those data. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.

124. **Cetrelia monachorum** (Zahlbr.) W.L. Culb. & C.F. Culb. – BR (Bely 2011a, Bely et al. 2014), GO (Bely et al. 2014), GR (Bely et al. 2014), MI (Randlane & Saag 1992, Bely 2011a, Golubkov et al. 2013, Bely et al. 2014), MO (Bely et al. 2014), VI (Bely 2011a, Bely et al. 2014): cor, lig Acp, Aln, Car, Fre, Pot, Qur, Sal. – Note: Only records of *C. monachorum* published with TLC data are included here as the species cannot be distinguished from *C. cetrarioides* without those data. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
125. **Cetrelia olivetorum** (Nyl.) W.L. Culb. & C.F. Culb. – BR (Bely 2011a, Bely et al. 2014), GO (Bely 2010a, 2011a, Bely et al. 2014), GR (Bely et al. 2014), MI (Bely 2010b, Bely et al. 2014), MO (Bely 2014, Bely et al. 2014), VI (Bely 2010b, Bely et al. 2014): cor, mus Acp, Aln, Bet, Car, Fre, Pot, Qur, Sal, Til. – Note: Only records of *C. olivetorum* published with TLC data are included here because the species was previously considered to be synonymous with *C. cetrarioides* by many authors in Belarus. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
126. **Chaenotheca brachypoda** (Ach.) Tibell – BR (Golubkov 1987, Yatsyna 2014d, 2016a, Bely 2016a), GR (Golubkov 1987, Yatsyna 2016a), MI (Golubkov 1987, 1992, Yatsyna 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, 2016a), VI (Golubkov 1992, Yatsyna 2010c, 2011a, 2016a, 2017, Bely 2013): cor, lig Acp, Aln, Fre, Pic, Poa, Poc, Pot, Qur, Sal, Til.
127. **Chaenotheca brunneola** (Ach.) Müll. Arg. – BR (Golubkov 1987), GR (Golubkov 1987), MI (Golubkov 1987, 1992, Yatsyna 2010f, 2014a), VI (Golubkov 1987, 1992, Golubkov & Titov 1990, Golubkov & Kobzar 2007, Yatsyna 2008): cor, lig Bet, Pin, Qup.
128. **Chaenotheca chlorella** (Ach.) Müll. Arg. – BR (Golubkov 1987, 1992, Yatsyna 2013d), GO (Golubkov 1987), GR (Golubkov 1987, Yatsyna 2016a, 2016c), MI (Golubkov 1987, 1992, Yatsyna 2014a, 2016a), VI (Insarov & Pchelkin 1982, Golubkov 1992, Yatsyna 2013e, 2016a): cor, lig Acp, Car, Pic, Pin, Qup, Qur, Sal, on Trichaptum biforme.
129. **Chaenotheca chrysocephala** (Ach.) Th. Fr. – BR (Golubkov 1987, Yatsyna 2013a, 2016a, Bely & Kudin 2016), GO (Golubkov & Titov 1990, Golubkov 1992, 2011, Bely 2010a, Yatsyna 2016a), GR (Bachmann & Bachmann 1920, Golubkov 1987, Bely 2011a, Yatsyna 2013a, 2016a, 2016c), MI (Golubkov & Vynaev 1981, Golubkov 1992, Kobzar 2006, Yatsyna 2009d, 2015c, 2016a, Bely 2011a, Golubkov et al. 2013), MO (Bely 2011a), VI (Kreyer 1913, Insarov & Pchelkin 1982, Golubkov 1987, 1991, 1992, Golubkov & Titov 1990, Golubkov & Kobzar 2007, Yatsyna 2010c, 2010f, 2016a, 2017, Bely 2011a), no exact locality (Gorbach 1962, Golubkov 1992, Yatsyna 2009e): cor, lig Aln, Bet, Pic, Pin, Qur, Sal.
130. **Chaenotheca cinerea** (Pers.) Tibell – MI (Yatsyna 2016a): cor Qur.
131. **Chaenotheca ferruginea** (Turner ex Sm.) Mig. – BR (Golubkov 1987, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Golubkov & Vynaev 1981, Golubkov 1987, 1992, 2011, Tsurykau 2005, Bely 2010a, 2011a, Tsurykau & Khramchankova 2015, Tsurykau & Tsurikova 2017), GR (Golubkov 1987, 1992, 2014a, Yatsyna 2010g, Bely 2011a), MI (Golubkov & Vynaev 1981, Golubkov & Titov 1990, Golubkov 1992, Chernyshov 2003, Yatsyna 2005, 2009d, 2010a, 2010f, 2013a, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2010c, 2011a, Yurchenko 2011, Yatsyna & Yurchenko 2013), MO (Kobzar 2006, Yatsyna 2009b, 2012a, 2013a, Bely 2011a), VI (Kreyer 1913, Golubkov 1987, 1991, 1992, Kravchuk 2001, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010f, 2011a, 2013a, 2017, Bely 2011a): cor, lig Aln, Bet, Lar, Pic, Pin, Pis, Qur.
132. **Chaenotheca furfuracea** (L.) Tibell – BR (Golubkov 1987, Bely 2011a, Yatsyna 2014d, 2016a, Bely & Kudin 2016), GO (Golubkov 1987, 1992, 2011, Bely 2010a, 2011a, Yatsyna 2016a, Tsurykau & Tsurikova 2017), GR (Yatsyna 2010g, 2013a, 2016a, 2016c, Bely 2011a, Yurchenko 2011, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Golubkov 1987, 1992, Yatsyna & Stefanovich 2005, Yatsyna 2005, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, 2016a, Bely 2011a, Yatsyna & Yurchenko 2013), MO

- (Yatsyna 2012a), VI (Kreyer 1913, Golubkov 1987, Golubkov & Kobzar 2007, Yatsyna 2010c, 2010d, 2010f, 2016a, 2017, Bely 2011a), no exact locality (Golubkov 1992): cor, lig, roo, ter Acp, Aln, Bet, Fre, Poa, Pic, Pin, Qup, Qur, Sal, Til, Ulm.
133. ***Chaenotheca gracilentia*** (Ach.) J.-E. Mattsson & Middelb. – BR (Golubkov 1987, Yatsyna 2016a), MI (Bachmann & Bachmann 1920): cor Bet, Qur.
 134. ***Chaenotheca hispidula*** (Ach.) Zahlbr. – GO (Tsurykau 2017c), MO (Yatsyna 2013d): cor Aln, Qur.
 135. ***Chaenotheca laevigata*** Nádv. – BR (Golubkov 1987), GR (Golubkov 1987), VI (Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2010f): cor, lig Acp, Pin, Qur.
 136. ***Chaenotheca phaeocephala*** (Turner) Th. Fr. – BR (Bely 2011a, Yatsyna 2014d), GO (Golubkov & Titov 1990, Golubkov 1992, Yatsyna 2016a, Tsurykau & Tsurikova 2017), GR (Golubkov & Titov 1990, Yatsyna 2016a, 2016c), MI (Golubkov & Vynaev 1981, Golubkov & Titov 1990, Golubkov 1992, Bely 2011a, Yatsyna 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, 2016a), MO (Kobzar 2006), VI (Yatsyna 2016a, 2017), no exact locality (Tomin 1939): cor Acp, Lar, Pic, Pin, Poa, Poc, Qur, Til.
 137. ***Chaenotheca stemonea*** (Ach.) Müll. Arg. – BR (Golubkov 1987, Yatsyna 2013a, 2014d, Bely 2016a, Bely & Kudin 2016), GO (Golubkov 1987, 1992, Tsurykau & Khramchankova 2010b, Bely 2011a, Tsurykau & Khramchankova 2015, Tsurykau & Tsurikova 2017), GR (Golubkov 1987, Kobzar 2006), MI (Golubkov 1987, 1992, Golubkov & Titov 1990, Bely 2011a, Yatsyna 2013b, 2014a, Golubkov et al. 2013), MO (Bely 2011a), VI (Kreyer 1913, Golubkov 1987, 1991, 1992, Golubkov & Kobzar 2007, Bely 2011a, 2011e, Yatsyna 2017), no exact locality (Golubkov 1992): cor, lig Acp, Aln, Bet, Pic, Pin, Qup, Qur.
 138. ***Chaenotheca trichialis*** (Ach.) Th. Fr. – BR (Golubkov 1987, Bely 2011a, Yatsyna 2013a, 2014d, 2016a, Bely & Kudin 2016), GO (Wyssotzky et al. 1925, Golubkov 1987, 1992, Kobzar 2006, Tsurykau & Khramchankova 2010b, Bely 2011a, Tsurykau & Khramchankova 2015, Yatsyna 2016a, Tsurykau & Tsurikova 2017), GR (Golubkov 1987, 1992, 2014a, Yatsyna 2010g, 2016a, 2016c), MI (Bachmann & Bachmann 1920, Golubkov & Titov 1990, Golubkov 1992, Chernyshov 2003, Yatsyna & Stefanovich 2005, Yatsyna 2010a, 2010f, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, 2016a, Bely 2011a, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Kobzar 2006, Yatsyna 2009b, 2012a, 2016a, Bely 2011a), VI (Kreyer 1913, Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2010c, 2010d, 2011a, 2016a, 2017, Bely 2011a): cor, lig Acp, Aln, Bet, Fre, Lar, Pic, Pin, Poa, Pyr, Qup, Qur, Til, Ulm.
 139. ***Chaenotheca xyloxena*** Nádv. – BR (Golubkov 1987), GO (Bely 2010a, Golubkov 2011), GR (Golubkov 1987), MI (Golubkov 1987, 1992, Golubkov & Titov 1990, Yatsyna 2010f), MO (Yatsyna 2013a), VI (Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2010f, 2011e, 2017, Bely 2011a), no exact locality (Golubkov 1992): cor, lig Aln, Car, Pic, Pin, Qur.
 140. ****Chaenothecopsis consociata*** (Nádv.) A.F.W. Schmidt – GR (Yatsyna 2016c), VI (Yatsyna 2011e, 2017): on *Chaenotheca chrysocephala*.
 141. ****Chaenothecopsis epithallina*** Tibell – GO (Golubkov 2011), GR (Golubkov 1987), VI (Golubkov 1987, Yatsyna 2011e): on *Chaenotheca trichialis*. – Note: The report of this species on pine roots by Yatsyna (2010c) seems doubtful and is not included in the present list. The supporting vouchers should be reexamined to determine the taxonomic status of the report.
 142. **+*Chaenothecopsis nana*** Tibell – MI (Yatsyna 2015c): cor Qur.
 143. **#*Chaenothecopsis pusilla*** (Ach.) A.F.W. Schmidt – BR (Golubkov 1987), GO (Tsurykau & Czarnota 2014, Tsurykau & Khramchankova 2015), GR (Yatsyna 2013a), MI (Yurchenko 2011, Yatsyna 2013a, 2015c), VI (Kreyer 1913, Yatsyna 2010f, 2013a, 2017, Yurchenko 2011): cor, lig Car, Qur, Pic, Pin.

144. **#Chaenothecopsis pusiola** (Ach.) Vain. – GR (Golubkov 1987), MI (Golubkov 1987, Yatsyna 2009d, Golubkov et al. 2013): lig, on *Chaenotheca* sp.
145. **+Chaenothecopsis savonica** (Räsänen) Tibell – GO (Tsurykau 2017c): lig.
146. **#Chaenothecopsis viridireagens** (Nádv.) A.F.W. Schmidt – GR (Golubkov 1987), VI (Golubkov 1992): lig Aln.
147. **Chrysothrix candelaris** (L.) J.R. Laundon – BR (Golubkov 1987, Golubkov & Kukwa 2006, Bely 2011a, Yatsyna 2014d), GO (Wyssotzky et al. 1925, Ges 1960, Golubkov 1992, 2007, 2011), GR (Golubkov 1987, Bely 2011a, Yatsyna 2016c), MI (Golubkov 1992, Yatsyna 2014a, 2015c), MO (Kobzar 2006, Yatsyna 2011c), VI (Yatsyna 2011e, 2017), no exact locality (Tomin 1956, Golubkov 1992): cor Acp, Fre, Pic, Qup, Qur, Sal, Til.
148. **Chrysothrix chlorina** (Ach.) J.R. Laundon – VI (Insarov & Pchelkin 1982): cor Pin.
149. **Circinaria calcarea** (L.) A. Nordin, Savić & Tibell – GR (Golubkov 2014b, Yatsyna 2016c), MI (Golubkov & Vynaev 1981), VI (Yurchenko 2011): cal. – Note: The report by Gorbach (1973b) was based on an incorrect nomenclatural update of *Lecanora calcarea* var. *contorta* from the of historical report by Bachmann and Bachmann (1920). Based on the description their report likely refers to *Circinaria contorta*.
150. **Circinaria contorta** (Hoffm.) A. Nordin, S. Savić & Tibell – GR (Golubkov 2014b, Yatsyna 2016c), VI (Bachmann & Bachmann 1920): sil.
151. **Circinaria gibbosa** (Hoffm.) A. Nordin, S. Savić & Tibell – MI (Yurchenko 2011): sil.
152. **Circinaria sphaerothallina** (J. Steiner) Sohrabi – GR (Yurchenko 2011): sil.
153. **Cladonia amaurocraea** (Flörke) Schaer. – GO (Gorbach 1973a, Golubkov 2011), GR (Bachmann & Bachmann 1920, Yatsyna 2013a), MI (Gorbach 1973b), VI (Kobzar 1985), no exact locality (Yatsyna 2009e): ter.
154. **Cladonia arbuscula** (Wallr.) Flot. ssp. **arbuscula** – BR (Tessendorff 1922, Krawiec 1938, Golubkov 1987, Yatsyna 2013a), GO (Savicz 1910, Wyssotzky et al. 1925, Ges 1960, Gorbach 1973a, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Tsurykau 2005, Timoshenkova & Tsurykau 2005, Kobzar 2006, Tsurykau et al. 2009, 2012c, Golubkov 2011, Yatsyna 2013a, Tsurykau & Tsurikova 2017), GR (Gilibert 1781, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Chernyshov 2003, Yatsyna & Stefanovich 2005, Kobzar 2006, Yatsyna 2010a, 2013a, Yurchenko 2011), MO (Kreyer 1913, Savicz 1925, Yatsyna 2009b, 2013a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Kobzar 2006, Golubkov & Kobzar 2007, Bely & Golubkov 2008, Yatsyna 2008, 2010c, 2010f, 2011a), no exact locality (Tsetterman 1948, Kobzar 1998, Yatsyna 2009e): cor, lig, mus, ter Pic, Pin; ssp. **mitis** (Sandst.) Ruoss – BR (Krawiec 1938, Gorbach 1965d, Golubkov 1987), GO (Golubkov & Vynaev 1981, Golubkov 2007, 2011, Tsurykau & Khramchankova 2009b, Tsurykau et al. 2009, 2012b, Bely 2011a, Tsurykau & Tsurikova 2017), GR (Golubkov 1987), MI (Golubkov & Vynaev 1981, Yatsyna 2009c, Bely 2011a), VI (Kobzar 1983, Golubkov & Kobzar 2007), no exact locality (Tomin 1937, Tsetterman 1948, Yatsyna 2009e): cor, lig, mus, ter Pin.
155. **Cladonia bacilliformis** (Nyl.) Sarnth. – BR (Gorbach 1973b, Golubkov 1987), GO (Danilchuk et al. 1976, Golubkov 1992, 2011), GR (Kobzar 2006, Golubkov 2014a), MI (Gorbach 1955, Gorbach 1965d, Golubkov & Vynaev 1981, Golubkov 1992, Yatsyna 2009c), VI (Tsetterman 1948, Golubkov 1987, 1992, Golubkov & Kobzar 2007), no exact locality (Tomin 1937): cor, lig, ter Bet, Pic, Pin.
156. **Cladonia botrytes** (K.G. Hagen) Willd. – BR (Suza 1928, Golubkov 1987, Yatsyna 2013a), GO (Ljubitzkaja 1914, Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Tsurykau 2005, Kobzar 2006,

- Tsurykau et al. 2009, 2012c, Golubkov 2011, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 1992, 2014a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2004c, Kobzar 2006, Yatsyna 2009c, 2010a, 2013a, 2015c), MO (Savicz & Savicz 1924, Savicz 1925, Yatsyna 2004, 2009b, 2013a), VI (Kreyer 1913, Kobzar 1983, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010f, 2011a, 2017, Bely 2011a), no exact locality (Tsetterman 1948, Gorbach 1973b, Kobzar 1998, Yatsyna 2009e): cor, lig, ter Bet, Pic, Pin, Qur.
157. **Cladonia caespitica** (Pers.) Flörke – GO (Bely 2010a, Yatsyna 2013e), GR (Golubkov 1987), MI (Golubkov et al. 2013, Yatsyna 2013a), MO (Bely 2014), VI (Bely 2008a, Yatsyna 2013e), no exact locality (Oksner 1968): cor, mus, ter Aln, Pic, Qur, Til.
158. **Cladonia cariosa** (Ach.) Spreng. – BR (Krawiec 1938, Golubkov 1987, Yatsyna 2013a), GO (Gorbach 1973a, Golubkov 1992, 2007), GR (Bachmann & Bachmann 1920, Golubkov 1992, 2014a, Yatsyna 2010g), MI (Oksner 1925, Tsetterman 1948, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, 2004a, Yatsyna 2009c, 2010a, 2015c, Yurchenko 2011), MO (Tsetterman 1948, Yatsyna 2004, 2009b, 2013b), VI (Kreyer 1913, Tsetterman 1948, Kobzar 1983, Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a), no exact locality (Bely 2013): lig, ter.
159. **Cladonia carneola** (Fr.) Fr. – BR (Golubkov 1987), GO (Gorbach 1973b, Golubkov 1992, 2007, Tsurykau & Khramchankova 2007, 2008), GR (Bachmann & Bachmann 1920, Golubkov 1992, 2014a, Yatsyna 2010g), MI (Bachmann & Bachmann 1920, Tsetterman 1948, Golubkov & Vynaev 1981, Yatsyna 2009c, 2010a), MO (Tsetterman 1948, Yatsyna 2004, Yatsyna 2013a), VI (Golubkov 1992, Golubkov & Kobzar 2007), no exact locality (Gorbach 1965d, Golubkov 1992): cor, lig, ter Qur.
160. **Cladonia cenotea** (Ach.) Schaer. – BR (Suza 1928, Golubkov 1987, Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Ges 1960, Gorbach 1973a, Golubkov & Vynaev 1981, Golubkov 2007, 2011, Tsurykau 2005, Tsurykau et al. 2009, 2012b, 2012c, Bely 2010a, 2011a, Yatsyna 2013a, 2014d, Tsurykau & Khramchankova 2015, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 1992, 2014a, Yatsyna 2010g, 2013a, Bely 2011a), MI (Bachmann & Bachmann 1920, Savicz 1925, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1992, Chernyshov 2003, 2004c, Yatsyna 2009c, 2010a, 2013a, 2015c, Bely 2010c, 2011a), MO (Savicz & Savicz 1924, Yatsyna 2004, 2009b, 2013a), VI (Kreyer 1913, Tsetterman 1948, Golubkov 1991, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010f, 2011a, 2013a, 2017, Bely 2011a), no exact locality (Yatsyna 2009e): cor, lig, mus, ter Aln, Bet, Car, Pic, Pin, Pot.
161. **Cladonia cervicornis** (Ach.) Flot. – GR (Bachmann & Bachmann 1920), VI (Kreyer 1913): ter. – Note: The reports of *C. cervicornis* (Ach.) Flot. by Yatsyna (2008, 2011a, 2013a) are treated as referring *C. verticillata* (Hoffm.) Schaer. and thus included under that species.
162. **Cladonia chlorophaea** (Flörke ex Sommerf.) Spreng. – BR (Tsurykau & Golubkov 2015), GO (Tsurykau & Golubkov 2015, Tsurykau & Tsurikova 2017), GR (Tsurykau & Golubkov 2015), MI (Tsurykau & Golubkov 2015), MO (Tsurykau & Golubkov 2015), VI (Tsurykau & Golubkov 2015): cor, lig, sil, ter Aln, Bet, Lar, Pin, Pot, Qur, Sal, Sor, Til. – Note: Only records of *C. chlorophaea* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the *C. chlorophaea* group without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
163. **Cladonia coccifera** (L.) Willd. – BR (Golubkov 1987), GO (Savicz 1911, Wyssotzky et al. 1925, Gorbach 1973a, Golubkov 1992, Tsurykau & Khramchankova 2007), GR (Gilibert 1781, 1792, Golubkov 1992, 2014a, Kobzar 2006, Yatsyna 2013a), MI (Oksner 1924, Tsetterman 1948, Golubkov & Vynaev 1981, Golubkov 1992, Yatsyna 2009c, 2013a), MO (Tsetterman 1948, Yatsyna 2009b), VI (Kreyer 1913, Tsetterman 1948, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2010c, 2011a, Bely 2011a), no exact locality (Gorbach 1973b, Kobzar 1998, Yatsyna 2009e): lig, mus, ter.

164. **Cladonia coniocraea** (Flörke) Spreng. – BR (Golubkov 1987, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1910, Ljubitzkaja 1914, Ges 1960, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Tsurykau 2005, Golubkov et al. 2007a, Tsurykau & Khramchankova 2007, 2008, 2015, Tsurykau et al. 2009, 2012b, 2012c, 2016a, Bely 2010a, 2011a, Sobchanka et al. 2012,), GR (Golubkov 1987, 1992, 2014a, Kobzar 2006, Bely 2011a, Yatsyna 2016c), MI (Oksner 1924, Tsetterman 1948, Gorbach 1955, 1973b, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1992, Kobzar 1997, 2006, Chernyshov 2003, 2004a, 2004b, 2004c, Yatsyna & Stefanovich 2005, Yatsyna 2005, 2009c, 2012b, 2012c, 2013b, 2014a, 2015c, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013), MO (Kreyer 1913, Savicz 1925, Yatsyna 2004, 2009b, Bely 2011a), VI (Kreyer 1913, Tsetterman 1948, Gorbach 1965d, 1973b, Golubkov 1991, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010f, 2011a, 2017, Bely 2011a, Yurchenko 2011), no exact locality (Belomesyatseva 2004): cal, cor, lig, mus, sil, ter Acp, Aln, Bet, Fre, Jun, Pic, Pin, Pot, Qur, Sor, Til, on Lobaria pulmonaria.
165. **Cladonia conista** (Nyl.) Robbins – BR (Tsurykau & Golubkov 2015), GO (Tsurykau & Golubkov 2015), MI (Tsurykau & Golubkov 2015): cor, ter Pot.
166. **Cladonia cornuta** (L.) Hoffm. – BR (Krawiec 1938, Golubkov 1987, Bely 2011b, Yatsyna 2013a), GO (Savicz 1911, Wyssotzky et al. 1925, Gorbach 1973a, Golubkov & Vynaev 1981, Tsurykau 2005, Tsurykau et al. 2009, 2012b, 2012c, Golubkov 2011, Bely 2011a), GR (Gilibert 1781, 1792, Golubkov 1987, 1992, 2014a, Yatsyna 2010g, 2013a, 2016c), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz 1925, Tsetterman 1948, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1992, Chernyshov 2003, 2004a, 2004c, Yatsyna 2009c, 2010a, 2013a), MO (Savicz 1925, Tsetterman 1948, Yatsyna 2004, 2009b, 2013a), VI (Kreyer 1913, Tsetterman 1948, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010f, 2011a, 2013a), no exact locality (Gorbach 1973b, Kobzar 1998, Belomesyatseva 2004, Yatsyna 2009e): cor, lig, mus, sil, ter Bet, Jun, Pic, Pin, Pot.
167. **Cladonia crispata** (Ach.) Flot. – BR (Krawiec 1938, Golubkov 1987, Bely 2011a, Yatsyna 2013a), GO (Wyssotzky et al. 1925, Gorbach 1973a, Golubkov & Vynaev 1981, Tsurykau & Khramchankova 2007, Tsurykau et al. 2009, 2012c, Golubkov 2011, Bely 2011a), GR (Bachmann & Bachmann 1920, Golubkov 1987, 1992, 2014a, Yatsyna 2010g, 2016c), MI (Savicz 1925, Golubkov & Vynaev 1981, Golubkov 1992, Kobzar 2006, Yatsyna 2009c, 2010a, Yurchenko 2011, Bely 2011a), MO (Tsetterman 1948, Yatsyna 2004, 2009b), VI (Kreyer 1913, Tsetterman 1948, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a), no exact locality (Gorbach 1973b, Kobzar 1998, Yatsyna 2009e): cor, lig, mus, ter Bet, Pic, Pin.
168. **Cladonia cryptochlorophaea** Asahina – GO (Tsurykau & Golubkov 2015), MI (Tsurykau & Golubkov 2015): ter.
169. **Cladonia cyanipes** (Sommerf.) Nyl. – VI (Golubkov 2002): ter.
170. **Cladonia deformis** (L.) Hoffm. – BR (Krawiec 1938, Golubkov 1987, Yatsyna 2013a), GO (Wyssotzky et al. 1925, Ges 1960, Gorbach 1973a, Golubkov & Vynaev 1981, Tsurykau 2005, Tsurykau et al. 2009, 2012c, Golubkov 2011, Yatsyna 2013a), GR (Golubkov 1987, 1992, 2014a, Yatsyna 2013a), MI (Oksner 1924, Savicz & Savicz 1924, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1992, Chernyshov 2003, Yatsyna & Stefanovich 2005, Bely 2011a, Yatsyna 2013a), MO (Kreyer 1913, Yatsyna 2004, 2013a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2011a), no exact locality (Gorbach 1973b, Kobzar 1998, Yatsyna 2009e): cor, lig, mus, ter Bet, Pic, Pin.
171. **Cladonia digitata** (L.) Hoffm. – BR (Golubkov 1987, Bely 2011a, Tsurykau et al. 2012c, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Wyssotzky et al. 1925, Ges 1960, Gorbach 1973a, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Tsurykau & Khramchankova 2007, Tsurykau et al. 2009, 2012c, Bely 2010a, 2011a), GR (Golubkov 1987, 1992, 2014a, Yatsyna 2010g, Bely 2011a), MI (Bachmann & Bachmann 1920, Savicz 1925, Tsetterman 1948, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna & Stefanovich 2005, Yatsyna 2010a, 2010f, 2013a, 2014a, 2015c,

Yatsyna & Yurchenko 2013, Bely 2010c, 2011a), MO (Savicz & Savicz 1924, Savicz 1925, Tsetterman 1948, Yatsyna 2004, 2009b, 2012a, 2013a, Bely 2011a), VI (Kreyer 1913, Tsetterman 1948, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010f, 2011a, 2013a, 2017, Bely 2011a): cor, lig, mus, ter Bet, Pic, Pin, Qur.

172. **Cladonia fimbriata** (L.) Fr. – BR (Tessendorff 1922, Golubkov 1987, Bely 2011a, Yatsyna 2013a, Tsurykau & Golubkov 2015, Bely & Kudin 2016), GO (Savicz 1910, Wyssotzky et al. 1925, Ges 1960, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Golubkov et al. 2007a, Tsurykau & Khramchankova 2007, 2008, Tsurykau et al. 2009, 2012b, 2012c, Bely 2010a, Golubkov 2011, Bely 2011a, Sobchanka et al. 2012, Tsurykau & Golubkov 2015), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 1992, 2014a, Golubkov & Khartanovich 2004b, Yatsyna 2010g, Bely 2011a, Yatsyna 2013a, Tsurykau & Golubkov 2015), MI (Bachmann & Bachmann 1920, Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1992, Chernyshov 2003, 2004a, 2004c, Yatsyna 2005, 2009c, 2010a, 2013b, 2013c, 2015c, Bely 2010c, 2011a, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Tsurykau & Golubkov 2015), MO (Kreyer 1913, Savicz 1925, Yatsyna 2004, 2009b, 2013a, Bely 2011a, Tsurykau & Golubkov 2015), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, Bely 2011a, Tsurykau & Golubkov 2015), no exact locality (Tsetterman 1948, Gorbach 1973b, Kobzar 1998): cor, lig, mus, sil, ter Aln, Bet, Car, Fre, Pic, Pin, Pon, Pot, Qur, Til.
173. **Cladonia floerkeana** (Fr.) Flörke – BR (Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Wyssotzky et al. 1925, Ges 1960, Golubkov 1992, 2011, Tsurykau 2005, Bely 2010a, 2011a, Yatsyna 2013a), GR (Yatsyna 2010g, Golubkov 2014a), MI (Oksner 1924, Savicz 1925, Golubkov & Vynaev 1981, Chernyshov 2004a, 2004c, Yatsyna 2009c, 2010f, Bely 2011a), MO (Savicz & Savicz 1924, Tsetterman 1948, Yatsyna 2004), VI (Kreyer 1913, Tsetterman 1948, Golubkov 1992, Yatsyna 2010c, 2013a), no exact locality (Gorbach 1973b): cor, lig, mus, ter Car, Pic, Pin.
174. **Cladonia foliacea** (Huds.) Willd. – BR (Golubkov 2002, 2009a), GR (Golubkov 2009a, Yatsyna 2015d), MI (Yatsyna 2010a), MO (Yatsyna 2015e), VI (Yatsyna 2010c): mus, ter.
175. **Cladonia furcata** (Huds.) Schrad. ssp. **furcata** – BR (Krawiec 1938, Golubkov 1987, Yatsyna 2013a), GO (Savicz 1910, Ges 1960, Gorbach 1973a, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau et al. 2009, 2012c, Golubkov 2011, Bely 2011a, Sobchanka et al. 2012, Yatsyna 2014d), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a, 2016c), MI (Savicz & Savicz 1924, Savicz 1925, Tsetterman 1948, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna & Stefanovich 2005, Kobzar 2006, Yatsyna 2010a, 2013a, Yurchenko 2011, Bely 2011a), MO (Yatsyna 2009b, 2013a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c), no exact locality (Gorbach 1973b): lig, mus, ter Pin; ssp. **subrangiformis** (L. Scriba ex Sandst.) Pišút – BR (Krawiec 1938), GO (Tsurykau & Khramchankova 2007), GR (Bachmann & Bachmann 1920), MI (Bachmann & Bachmann 1920), MO (Kreyer 1913), VI (Kreyer 1913, Bachmann & Bachmann 1920, Golubkov 1992): ter.
176. **Cladonia glauca** Flörke – BR (Golubkov 1987, Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Golubkov 1992, Bely 2010a, 2011a), GR (Bachmann & Bachmann 1920, Golubkov 1987), MI (Gorbach 1965d, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Yatsyna 2009c), VI (Golubkov 1987, 1992), no exact locality (Gorbach 1965d): cor, lig, mus, ter Aln, Bet, Pin.
177. **Cladonia gracilis** (L.) Willd. – BR (Tessendorff 1922, Krawiec 1938, Golubkov 1987, Yurchenko 2011, Yatsyna 2013a), GO (Savicz 1911, Ljubitzkaja 1914, Wyssotzky et al. 1925, Ges 1960, Gorbach 1973a, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Tsurykau 2005, Golubkov et al. 2007a, Tsurykau et al. 2009, 2012c, Golubkov 2011, Bely 2011a, Yatsyna 2014d), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Kobzar 2006, Yatsyna 2010g, 2013a, 2016c), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Tsetterman 1948, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1992, Chernyshov 2003, Yatsyna & Stefanovich 2005, Kobzar 2006, Yatsyna 2010a, 2013a, Yurchenko 2011, Bely 2011a), MO (Savicz 1925, Tsetterman

1948, Yatsyna 2004, 2009b, 2013a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Tsetterman 1948, Gorbach & Mashenkova 1967, Golubkov 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a, Bely 2011a), no exact locality (Gorbach 1973b, Kobzar 1998, Yatsyna 2009e): cor, lig, mus, ter Bet, Pic, Pin.

178. **Cladonia grayi** G. Merr. ex Sandst. – BR (Tsurykau & Golubkov 2015), GO (Tsurykau & Golubkov 2015), GR (Tsurykau & Golubkov 2015), MI (Tsurykau & Golubkov 2015), MO (Tsurykau & Golubkov 2015, Tsurykau 2017a), VI (Tsurykau & Golubkov 2015, Tsurykau 2017a): cor, lig, ter Aln, Bet, Car, Jun, Pic, Pin, Qur. – Note: Only records of *C. grayi* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the *C. chlorophaea* group without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
179. **Cladonia homosekikaica** Nuno – MI (Tsurykau & Golubkov 2015): lig.
180. **Cladonia incrassata** Flörke – BR (Suza 1928, Bely 2011a, 2011b, Yatsyna 2013a), GO (Golubkov 1992, Bely 2010a, Tsurykau & Khramchankova 2010b, Yurchenko 2011), MI (Savicz & Savicz 1924, Savicz 1925, Tsetterman 1948, Golubkov 1992, Yatsyna 2009c, 2010f, Bely 2011a, Golubkov et al. 2013), MO (Yatsyna 2004, 2013a, Bely 2011a), VI (Golubkov 1992, Bely 2011a), no exact locality (Gorbach 1973b): cor, lig, roo, ter Pic, Pin.
181. **Cladonia macilenta** Hoffm. – BR (Błoński 1888, Golubkov 1987, Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Savicz 1911, Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Tsurykau & Khramchankova 2009b, 2015, Tsurykau et al. 2009, 2012b, 2012c, Bely 2010a, 2011a, Golubkov 2011, Yatsyna 2013a, 2014d), GR (Golubkov 1987, 2014a, Yatsyna 2010g, 2013a), MI (Bachmann & Bachmann 1920, Oksner 1924, Golubkov & Vynaev 1981, Chernyshov 2003, Kobzar 2006, Yatsyna 2009c, 2010a, 2010f, 2013a, 2015c, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Kreyer 1913, Savicz & Savicz 1924, Savicz 1925, Tsetterman 1948, Yatsyna 2004, 2009b, 2013a, Bely 2011a), VI (Kreyer 1913, Tsetterman 1948, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010f, 2011a, 2013a, 2017, Bely 2011a), no exact locality (Gorbach 1973b, Yatsyna 2009e): cor, lig, mus, ter Bet, Pic, Pin, Pot, Qur; var. **bacillaris** (Genth) Schaer. – BR (Krawiec 1938, Golubkov 1987, Bely 2011a, Bely & Kudin 2016), GO (Savicz 1911, Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Golubkov 1992, Tsurykau 2005, Golubkov et al. 2007a, Tsurykau et al. 2009, 2012c, Bely 2010a, 2011a), GR (Golubkov 1987, 1992), MI (Tsetterman 1948, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1992, Yatsyna & Stefanovich 2005, Bely 2011a), MO (Savicz & Savicz 1924, Tsetterman 1948, Yatsyna 2004), VI (Kreyer 1913, Tsetterman 1948, Golubkov 1987, 1992, Golubkov & Kobzar 2007, Bely 2011a), no exact locality (Tomin 1937, Kobzar 1998): cor, lig, mus, ter Bet, Pic, Pin, Qur.
182. **Cladonia macrophylla** (Schaer.) Stenh. – MI (Golubkov 1992): ter.
183. **Cladonia merochlorophaea** Asahina – BR (Tsurykau & Golubkov 2015), GO (Tsurykau & Golubkov 2015, Tsurykau 2017a), GR (Tsurykau & Golubkov 2015), MI (Tsurykau & Golubkov 2015): cor, lig, ter Bet, Jun, Pin.
184. **Cladonia monomorpha** Aptroot, Sipman & van Herk – BR (Tsurykau & Golubkov 2015), GO (Tsurykau & Golubkov 2015), GR (Tsurykau & Golubkov 2015), MI (Tsurykau & Golubkov 2015), VI (Tsurykau & Golubkov 2015): sil, ter.
185. **Cladonia novochlorophaea** (Sipman) Brodo & Ahti – GO (Tsurykau & Golubkov 2015): cor, ter Pin.
186. **Cladonia norvegica** Tønsberg & Holien – GO (Yatsyna 2012e), MI (Bely 2011a, Yatsyna 2011c, 2015c, Golubkov et al. 2013), MO (Yatsyna 2011c), VI (Bely 2011a): cor, lig, mus, ter Bet, Pin, Qur.
187. **Cladonia parasitica** (Hoffm.) Hoffm. – BR (Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Golubkov 1987, 1992, 2007, Bely 2010a), GR (Golubkov 1987, 2014a, Valko 2008, Yatsyna 2010g), MI

- (Gorbach 1965d, Golubkov & Vynaev 1981, Golubkov 1992, Bely 2011a, Golubkov et al. 2013), MO (Savicz 1925), VI (Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2011a), no exact locality (Gorbach 1965d): cor, lig, ter Bet, Pic, Pin, Qur.
188. **Cladonia phyllophora** Hoffm. – BR (Krawiec 1938, Golubkov 1987, Yatsyna 2013a), GO (Savicz 1911, 1925, Golubkov & Vynaev 1981, Tsurykau 2005, Tsurykau et al. 2009, 2012c, Golubkov 2011, Bely 2011a), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a), MI (Bachmann & Bachmann 1920, Savicz 1925, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Chernyshov 2003, Kobzar 2006, Yatsyna 2009c, 2010a, Yurchenko 2011, Bely 2011a), MO (Savicz 1925, Tsetterman 1948), VI (Kreyer 1913, Bachmann & Bachmann 1920, Tsetterman 1948, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2010c, 2011a): lig, mus, ter.
 189. **Cladonia pleurota** (Flörke) Schaer. – BR (Krawiec 1938, Golubkov 1987, Yatsyna 2013a), GO (Gorbach 1973b, Lapitskaya et al. 1979, Golubkov 1992), GR (Yatsyna 2010g, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Savicz 1925, Tsetterman 1948, Yatsyna 2009c, 2010a, 2013a), MO (Yatsyna 2009b), VI (Bachmann & Bachmann 1920, Yatsyna 2008, 2010c, Yurchenko 2011, Bely 2011a): lig, ter Pin.
 190. **Cladonia pocillum** (Ach.) O.J. Rich. – GR (Golubkov 1993, 2014a, Yatsyna 2013d), MI (Golubkov 1993), VI (Golubkov 1993): cal, mus, sil.
 191. **Cladonia polydactyla** (Flörke) Spreng. – GR (Bachmann & Bachmann 1920), MI (Bachmann & Bachmann 1920, Yatsyna 2009c), VI (Golubkov 1992): ter.
 192. **Cladonia portentosa** (Dufour) Coem. – BR (Krawiec 1938), GO (Golubkov 2011), GR (Bachmann & Bachmann 1920), MI (Yatsyna 2009c), MO (Tsetterman 1948, Yatsyna 2004), VI (Tsetterman 1948, Kobzar 2006, Yatsyna 2010f) no exact locality (Gorbach 1973b, Bely & Vashkevich 2017): ter.
 193. **Cladonia pyxidata** (L.) Hoffm. – BR (Tsurykau & Golubkov 2015), GO (Tsurykau & Golubkov 2015), GR (Tsurykau & Golubkov 2015), MI (Tsurykau & Golubkov 2015), VI (Tsurykau & Golubkov 2015): sil, ter. – Note: Only records of *C. pyxidata* published subsequent to Tsurykau and Golubkov (2015) are included here as the species was historically confused with several other members of the genus. Earlier reports could refer to other taxa and thus require confirmation via examination of the supporting vouchers.
 194. **Cladonia ramulosa** (With.) J.R. Laundon – BR (Krawiec 1938, Kobzar 2006), GO (Ljubitzkaja 1914, Golubkov 1992, Bely 2011a), GR (Bachmann & Bachmann 1920, Golubkov 1987, Yatsyna 2013a), MI (Yatsyna 2009c, 2010a, Bely 2011a), MO (Yatsyna 2013a), VI (Golubkov 1992, Yatsyna 2008, 2010c, 2011a), no exact locality (Yatsyna 2009e): lig, mus, ter.
 195. **Cladonia rangiferina** (L.) F.H. Wigg. – BR (Tessendorff 1922, Kobzar 2006, Yatsyna 2013a), GO (Savicz 1911, Wyssotzky et al. 1925, Ges 1960, Gorbach 1973a, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau et al. 2009, 2012b, 2012c, Golubkov 2011, Tsurykau & Tsurikova 2017), GR (Gilibert 1792, Błoński 1889, Bachmann & Bachmann 1920, Yatsyna 2010g, 2013a, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Chernyshov 2004a, 2004c, Yatsyna & Stefanovich 2005, Kobzar 2006, Yatsyna 2010a, 2013a, Yurchenko 2011), MO (Downar 1861, Kreyer 1913, Savicz 1925, Yatsyna 2009b, 2013a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Scherbakova 1982, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2013a), no exact locality (Tsetterman 1948, Kobzar 1998, Yatsyna 2009e, 2010f, 2011a, Bely 2013): cor, lig, mus, ter Bet, Pin.
 196. **Cladonia rangiformis** Hoffm. – BR (Krawiec 1938, Gorbach 1973b), GO (Gorbach 1973b), GR (Kobzar 2006, Yatsyna 2016c), MI (Tsetterman 1948, Golubkov 1993), MO (Yatsyna 2013a), VI (Gorbach 1973b): mus, ter.
 197. **Cladonia rei** Schaer. – BR (Kobzar 2006), GO (Golubkov & Vynaev 1981, Golubkov 1992, 2007, 2011, Tsurykau 2005, Tsurykau & Khranchankova 2010b, Tsurykau et al. 2012c, Tsurykau & Tsurikova 2017),

- GR (Golubkov 1992, 2014a), MI (Tsetterman 1948, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2004b, Yatsyna 2009c, Yurchenko 2011), MO (Tsetterman 1948), VI (Kreyer 1913, Tsetterman 1948, Golubkov 1992, Golubkov & Kobzar 2007, Bely 2011a), no exact locality (Golubkov 1987, Yatsyna 2009e): lig, ter.
198. **Cladonia scabriuscula** (Delise) Leight. – BR (Golubkov 1987), GO (Golubkov 1987), MI (Bely 2011a): cor, lig, mus Pic.
199. **Cladonia squamosa** (Scop.) Hoffm. – BR (Golubkov 1987, Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Golubkov & Vynaev 1981, Golubkov 1992, 2007, 2011, Tsurykau 2005, Tsurykau et al. 2009, 2012c, Bely 2010a), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a), MI (Bachmann & Bachmann 1920, Savicz & Savicz 1924, Savicz 1925, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Kobzar 2006, Yatsyna 2009c, 2010a, Bely 2011a), MO (Yatsyna 2004), VI (Kreyer 1913, Bachmann & Bachmann 1920, Tsetterman 1948, Insarov & Pchelkin 1982, Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2011a, 2013a, Bely 2011a), no exact locality (Gorbach 1965d): cor, lig, mus, sil, ter Bet, Pic, Pin, Qur.
200. **Cladonia symphycarpia** (Flörke) Fr. – GR (Yatsyna 2015d): cal, mus.
201. **Cladonia stellaris** (Opiz) Pouzar & Vězda – BR (Kobzar 2006, Yatsyna 2013a), GO (Kobzar 2006, Golubkov 2007, Yatsyna 2013a), GR (Yatsyna 2013a), MI (Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Golubkov & Vynaev 1981, Yatsyna & Stefanovich 2005, Kobzar 2006, Yurchenko 2011, Yatsyna 2013a), MO (Kobzar 2006, Yatsyna 2009b), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Scherbakova 1982, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, Yurchenko 2011), no exact locality (Tsetterman 1948, Golubkov 1987, Kobzar 1998, Yatsyna 2009e, 2011a, Bely & Vashkevich 2017): mus, ter.
202. **Cladonia stygia** (Fr.) Ruoss – VI (Yatsyna 2011e): mus, ter.
203. **Cladonia subulata** (L.) Weber ex F.H. Wigg. – BR (Krawiec 1938, Golubkov 1987, Yatsyna 2013a), GO (Ges 1960, Golubkov & Vynaev 1981, Tsurykau 2005, Golubkov 2007, 2011, Tsurykau & Khramchankova 2009a, Tsurykau et al. 2009, 2012c, Bely 2011a, Tsurykau & Tsurikova 2017), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a), MI (Oksner 1924, Tsetterman 1948, Golubkov & Vynaev 1981, Chernyshov 2003, Kobzar 2006, Yatsyna 2009c, 2010a, 2013a, Yurchenko 2011, Bely 2011a), MO (Kreyer 1913, Yatsyna 2004, 2009b, 2013a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a), no exact locality (Yatsyna 2009e): cor, lig, mus, ter Pic.
204. **Cladonia sulphurina** (Michx.) Fr. – MI (Tsetterman 1948, Golubkov 1993), VI (Golubkov 1993): lig, ter.
205. **Cladonia tenuis** (Flörke) Harm. – GO (Tsurykau 2005), GR (Bachmann & Bachmann 1920), MI (Bachmann & Bachmann 1920, Golubkov & Yesis 1997a, Yatsyna 2009c, Yurchenko 2011), MO (Yatsyna 2004), VI (Scherbakova 1982, Kobzar 2006), no exact locality (Tomin 1937, Tsetterman 1948, Gorbach 1965d): ter, lig Pic.
206. **Cladonia turgida** (Ehrh.) Hoffm. – BR (Kobzar 2006, Yatsyna 2013a), GO (Tsurykau 2005, Tsurykau et al. 2009, 2012c, Yatsyna 2013a), GR (Bachmann & Bachmann 1920, Gorbach 1973a, Yatsyna 2013a, Golubkov 2014a), MI (Oksner 1924, Savicz 1925, Tsetterman 1948, Golubkov & Vynaev 1981, Kobzar 2006, Yatsyna 2009c, 2010a, 2013a), MO (Kreyer 1913, Tsetterman 1948, Kobzar 2006, Yatsyna 2009b, 2013a), VI (Kreyer 1913, Gorbach 1965d, Golubkov 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a, Bely 2011a), no exact locality (Golubkov 1987, Yatsyna 2009e): ter.
207. **Cladonia uncialis** (L.) F.H. Wigg. ssp. **uncialis** – BR (Golubkov 1987, Yatsyna 2013a), GO (Ges 1960, Golubkov 1992, 2007, Tsurykau 2005, Tsurykau et al. 2009, 2012c, Yatsyna 2013a), GR (Gilibert 1781, 1792, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a), MI (Bachmann & Bachmann 1920, Tsetterman 1948, Gorbach 1955, Golubkov & Vynaev 1981, Yatsyna & Stefanovich 2005, Yatsyna 2010a, 2013a),

MO (Tsetterman 1948, Yatsyna 2004, 2009b, 2013a), VI (Tsetterman 1948, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2013a), no exact locality (Kobzar 1998, Yatsyna 2009e, 2011a, Bely 2013): lig, ter; ssp. **biuncialis** (Hoffm.) M. Choisy – BR (Golubkov 1987), GR (Golubkov 1987, 2014a): ter.

208. **Cladonia verticillata** (Hoffm.) Schaer. – BR (Krawiec 1938, Golubkov 1987, Bely & Kudin 2016), GO (Savicz 1910, Wyssotzky et al. 1925, Gorbach 1973a, Golubkov & Vynaev 1981, Tsurykau 2005, Tsurykau et al. 2009, 2012c, Bely 2010a, 2011a, Yurchenko 2011, Golubkov 2011, Yatsyna 2013a), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g), MI (Bachmann & Bachmann 1920, Savicz & Savicz 1924, Savicz 1925, Golubkov & Vynaev 1981, Golubkov 1987, Chernyshov 2003, 2004a, Yatsyna 2009c, 2010a, 2013a, Bely 2011a), VI (Bachmann & Bachmann 1920, Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a), no exact locality (Tsetterman 1948, Yatsyna 2009e): cor, lig, mus, ter Bet. – Note: All reports of *C. cervicornis* (Ach.) Flot. by Yatsyna (2008, 2011a, 2013a) are treated as referring *C. verticillata*.
209. **Clauzadea monticola** (Ach. ex Schaer.) Hafellner & Bellem. – GR (Bachmann & Bachmann 1920), VI (Kreyer 1913): cal, sil.
210. **Cliostomum corrugatum** (Ach.: Fr.) Fr. – GO (Yatsyna 2012e), GR (Yatsyna 2013d), MI (Yatsyna 2013c, 2014a, 2015c), no exact locality (Oksner 1968): cor Acp, Fre, Qur, Til.
211. **Cliostomum griffithii** (Sm.) Coppins – VI (Kobzar 2006, Yatsyna 2012g), no exact locality (Oksner 1968): cor Pin.
212. **Cliostomum leprosum** (Räsänen) Holien & Tønsberg – GO (Tsurykau & Khranchankova 2013), MI (Golubkov & Kukwa 2006): cor Pin.
213. **Coenogonium pineti** (Ach.) Lücking & Lumbsch – BR (Golubkov & Gagarina 2010, Bely 2011a, Yatsyna 2014d, Bely & Kudin 2016), GO (Tsurykau & Khranchankova 2009b, 2015, Bely 2010a, 2011a, Golubkov 2011), GR (Golubkov & Gagarina 2010, Bely 2011a, Yatsyna 2016c), MI (Gorbach 1955, Golubkov & Vynaev 1981, Golubkov & Gagarina 2010, Bely 2011a, Yatsyna 2011c, 2012b, 2012c, 2013b, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Bely 2011a, Yatsyna 2011c), VI (Gorbach & Osmolovskaya 1965, Yatsyna 2010c, 2017, Bely 2011a): cor, lig, mus Aln, Bet, Car, Pic, Pin, Pis, Qur, Sal, Sam, Til, Ulm.
214. **Collema flaccidum** (Ach.) Ach. – GR (Makarevich 1960, Yurchenko 2011), MI (Golubkov 1987, Yurchenko 2011), VI (Yatsyna 2011e): cor, mus Pot, Qur.
215. **Collema nigrescens** (Huds.) DC. – BR (Krawiec 1938): cor Sal.
216. **Collema subflaccidum** Degel. – GR (Golubkov & Bludov 2005, Yatsyna 2015d): cal.
217. **Cresponea chloroconia** (Tuck.) Egea & Torrente – VI (Kreyer 1913): cor, lig Pic, Pin.
218. **Cyphelium notarisii** (Tul.) Blomb. & Forssell – GO (Tsurykau & Khranchankova 2009b, Golubkov 2011): cor, lig Pin.
219. **Cyphelium tigillare** (Ach.) Ach. – GO (Wyssotzky et al. 1925, Yatsyna & Motiejūnaite 2015), MI (Bachmann & Bachmann 1920, Yatsyna 2009d), MO (Yatsyna 2012a, 2013d), VI (Yatsyna 2011e): lig.
220. **Dermatocarpon miniatum** (L.) W. Mann. – MI (Golubkov & Yesis 1997a, Yatsyna & Motiejūnaite 2015), no exact locality (Gorbach 1965d): cal, sil.
221. **Dibaeis baemyces** (L. f.) Rambold & Hertel – BR (Krawiec 1938), GO (Savicz 1910, Golubkov 1992, 2011, Golubkov et al. 2007a), GR (Gilibert 1792, Bachmann & Bachmann 1920, Golubkov 2014a, Yatsyna 2010b), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Golubkov & Vynaev 1981, Golubkov 1992, Kobzar 2006, Yatsyna 2010b, 2010h, Golubkov et al. 2013), MO (Downar

- 1862), VI (Kreyer 1913, Golubkov 1992, Golubkov & Kobzar 2007, Bely 2011a, 2011e), no exact locality (Tomin 1937, Kobzar 1998): ter.
222. **Dimelaena oreina** (Ach.) Norman – GO (Yatsyna & Motiejūnaite 2015), no exact locality (Novruzov 1990): sil.
223. **Diploschistes muscorum** (Scop.) R. Sant. – GO (Golubkov 1993, Tsurykau 2011), GR (Golubkov 2011, Yatsyna 2013d), MI (Yurchenko 2011), VI (Golubkov 1993, 2011): cal, cor, mus, sil, ter Fre, Qur, on *Cladonia* spp.
224. **Diploschistes scruposus** (Schreb.) Norman – GO (Savicz 1911, Palamarchuk et al. 1975, Golubkov 1992), GR (Bachmann & Bachmann 1920, Golubkov 1992, 1997), MI (Golubkov & Vynaev 1981, Golubkov 1992), VI (Kobzar 1983, Golubkov 1996): sil, ter.
225. **Diplotomma alboatrum** (Hoffm.) Flot. – GR (Golubkov 1987), MI (Yatsyna & Yurchenko 2013), VI (Kreyer 1913, Yatsyna 2011e): cal, cor Acn, Pot.
226. **Diplotomma epipolium** (Ach.) Arnold – GO (Kobzar 2006), VI (Kobzar 2006): sil.
227. **Dufourea ligulata** (Körb.) Frödén, Arup & Söchting – GR (Golubkov 2013a), MI (Golubkov 2013a): cor Bet, Pon.
228. **Enchylium bachmanianum** (Fink) Otálora, P. M. Jørg. & Wedin – GO (Tsurykau 2017c): ter.
229. **Enchylium limosum** (Ach.) Otálora, P. M. Jørg. & Wedin – GO (Golubkov 2006), MI (Golubkov 2006), VI (Bachmann & Bachmann 1920, Golubkov 1993, Yatsyna 2010d, Yurchenko 2011): mus, ter.
230. **Enchylium tenax** (Sw.) Gray – GO (Golubkov 2006), GR (Golubkov 2006, Yatsyna 2016c), MI (Golubkov 2006, Yatsyna 2010a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Golubkov 1996, Yatsyna 2010c, 2010d): mus, ter.
231. **Endocarpon pusillum** Hedw. – VI (Golubkov 1993), MI (Yatsyna 2010a): mus, ter.
232. **Evernia divaricata** (L.) Ach. – BR (Krawiec 1938, Golubkov 1987, Kobzar 2006, Bely 2011a), GO (Golubkov 1992, Kravchuk 2000), MI (Bachmann & Bachmann 1920, Gorbach 1965d, Golubkov & Vynaev 1981, Golubkov & Yesis 1997a, Yatsyna 2010h, Yatsyna 2013e), MO (Savicz & Savicz 1924), VI (Kreyer 1913, Gorbach 1965d, Gorbach & Mashenkova 1967, Golubkov 1987, 1992, Bely 2008b, Yatsyna 2009e), no exact locality (Tomin 1937, Gorbach 1962, Golubkov 1992, Kravchuk 2001): cor Acp, Aln, Bet, Pic, Pin, Sal.
233. **Evernia mesomorpha** Nyl. – BR (Bely 2011b, Yatsyna 2013a), GO (Savicz 1911, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Kravchuk 2001, Tsurykau 2005, Kobzar 2006, Tsurykau & Khranchankova 2008, Tsurykau et al. 2009, 2013b, Bely 2011a, Tsurykau & Tsurikova 2017), MI (Savicz 1925, Gorbach 1961, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna 2009d, 2010a, 2010f, 2013a, Bely 2011a, 2012c), MO (Kreyer 1913, Savicz 1925, Yatsyna 2004, 2009b, 2012a, 2013a), VI (Kreyer 1913, Gorbach 1965d, Golubkov 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010f, 2011a, 2017, Bely & Golubkov 2009b, Yurchenko 2011, Bely 2011a), no exact locality (Gorbach 1956, Golubkov 1992): cor, lig, ter Acp, Aln, Bet, Car, Fre, Pic, Pin, Pot, Qur, Sal, Sor, Til.
234. **Evernia prunastri** (L.) Ach. – BR (Tessendorff 1922, Golubkov 1987, Kobzar 2006, Bely 2011a, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Ges 1960, Palamarchuk et al. 1975, Gorbach & Getko 1978, Golubkov & Vynaev 1981, Kravchuk 2000, 2001, Tsurykau 2004, 2005, 2010, Timoshenkova & Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khranchankova 2008, 2010a, 2015, Tsurykau et al. 2009, 2012b, 2013b, Bely 2010a, 2011a, Golubkov 2011, Sobchanka et al. 2012, Yatsyna 2014d, Tsurykau & Tsurikova 2017), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005, Kobzar

- 2006, Andreeva et al. 2006, Yatsyna 2010g, 2013a, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Kravchuk & Kakareka 1995, Kobzar 1997, Chernyshov 2003, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, Kobzar 2006, Bely 2010c, 2011a, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013), MO (Downar 1861, Kreyer 1913, Savicz & Savicz 1924, Savicz 1925, Kravchuk & Kakareka 1998, Yatsyna 2004, 2009b, Kobzar 2006, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Gorbach et al. 1982, Insarov & Pchelkin 1982, Golubkov 1991, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, 1973b, Yatsyna 2009e): cor, fol, lig, sil Acd, Acp, Acr, Acs, Act, Ahi, Aln, Bet, Car, Coa, Fre, Jun, Lar, Mal, Pce, Pdi, Pdo, Pic, Pin, Poa, Pob, Poc, Pon, Pot, Ppa, Pyr, Qup, Qur, Sal, Sor, Til, Ulm, on *Lobaria pulmonaria*.
235. **Felipes leucopellaeus** (Ach.) Frisch & G. Thor – GR (Golubkov 1987), MI (Yatsyna 2014a), MO (Tomin 1956), VI (Yatsyna 2010c, Yurchenko 2011): cor Aln, Fre, Til.
236. **Fellhanera bouteillei** (Desm.) Vězda – GR (Bely & Golubkov 2012), MI (Bely 2011a, Yatsyna 2012d), MO (Savicz & Savicz 1924, Bely 2011a), VI (Bely 2011a, Yatsyna 2011e, 2017): cor, fol Pic.
237. **Fellhanera gyrophorica** Sérus., Coppins, Diederich & Scheid. – BR (Golubkov & Kukwa 2006), GR (Yatsyna 2016c), MI (Yatsyna 2014a), VI (Yatsyna 2017): cor Acp, Aln, Qur.
238. **Fellhanera subtilis** (Vězda) Diederich & Sérus. – BR (Yatsyna & Motiejūnaite 2015), GR (Yatsyna 2016c), MI (Bely 2011a, Yatsyna & Motiejūnaite 2015), VI (Yatsyna 2011a, Gapienko et al. 2014, Yatsyna 2017): cor, fol, mus Pic, Vac.
239. **Flavoparmelia caperata** (L.) Hale – BR (Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Ges 1960, Palamarchuk et al. 1975, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Golubkov 1987, 2011, Tsurykau 2004, 2005, 2017a, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, 2010a, 2015, Tsurykau et al. 2009, 2013b, Bely 2010a, 2011a, Yurchenko 2011, Yatsyna 2014d), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 1992, 2014a, Yatsyna 2016c), MI (Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1987, 1992, Kobzar 2006, Yatsyna 2006a, 2014a, 2015c, Bely 2010c, Golubkov et al. 2013), MO (Kreyer 1913, Savicz & Savicz 1924, Savicz 1925, Kobzar 2006, Yatsyna 2009b, 2012a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Gorbach 1978, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2010c, 2010d), no exact locality (Gorbach 1956, 1957, Golubkov 1992, Yatsyna 2009e): cor, mus Acp, Aln, Bet, Car, Coa, Fre, Pic, Pin, Pot, Qup, Qur, Sal, Sor, Til, Ulm.
240. **Flavoplaca citrina** (Hoffm.) Arup, Frödén & Söchting – GO (Tsurykau & Khramchankova 2011a), GR (Golubkov 1987, 1992, Yatsyna 2016c), MI (Yatsyna & Golubkov 2009, Yatsyna 2012b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013), VI (Golubkov 1987, 1991, 1992), no exact locality (Golubkov 1992): cal.
241. **Flavoplaca flavocitrina** (Nyl.) Arup, Frödén & Söchting – GO (Tsurykau & Kondratyuk 2011), GR (Yatsyna 2016c): cal.
242. **Fuscidea arboricola** Coppins & Tønsberg – GO (Tsurykau et al. 2014a): cor Pin.
243. **Fuscidea pusilla** Tønsberg – GO (Tsurykau et al. 2016a): cor Pin.
244. **Graphis scripta** (L.) Ach. – BR (Golubkov 1987, Kobzar 2006, Bely 2012b, 2016a, Yatsyna 2014d, Bely & Kudin 2016), GO (Savicz 1911, Wyssotzky et al. 1925, Ges 1960, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Tsurykau 2004, 2005, Golubkov et al. 2007a, Bely & Golubkov 2009a, Tsurykau et al. 2009, Bely 2010a, 2011a, Yurchenko 2011, Golubkov 2011), GR (Gilibert 1792, Golubkov 1987, 2014a, Kobzar 2006, Yatsyna 2010g, 2016c, Yurchenko 2011, Bely 2011a), MI (Bachmann & Bachmann 1920, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Yatsyna 2005, 2010a, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c,

- Kobzar 2006, Bely 2010c, 2011a, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Kobzar 2006, Yatsyna 2009b, 2012a, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Kobzar 2006, Yatsyna 2008, 2010c, 2010d, 2011a, 2011e, 2017, Bely & Golubkov 2009a, Yurchenko 2011, Bely 2011a), no exact locality (Gorbach 1956, 1957): cor Abi, Acp, Aln, Bet, Car, Coa, Fre, Pot, Qur, Sal, Sor, Til, Ulm.
245. **Gyalecta derivata** (Nyl.) H. Olivier – GO (Golubkov & Gagarina 2010): cor Pon, Sal.
 246. **Gyalecta truncigena** (Ach.) Hepp – GR (Makarevich 1960), VI (Yatsyna 2017): cor Pot.
 247. **Gyalecta fagicola** (Hepp) Kremp. – MI (Yatsyna 2012c): cor Acp.
 248. **Gyalolechia flavorubescens** (Huds.) Söchting, Frödén & Arup – GR (Yatsyna 2013d), VI (Bely 2015b): cor Pot.
 249. **Gyalolechia flavovirescens** (Wulfen) Söchting, Frödén & Arup – GO (Golubkov 2007, Tsurykau & Khramchankova 2010b), GR (Yatsyna 2016c), MI (Golubkov & Vynaev 1981, Yatsyna 2014a), VI (Kreyer 1913, Gapienko et al. 2014): cal, sil.
 250. **Haematomma ochroleucum** (Neck.) J.R. Laundon – VI (Insarov & Pchelkin 1982): cor Qur.
 251. **Hazslinszkya gibberulosa** (Ach.) Körb. – GO (Tsurykau & Khramchankova 2009b), no exact locality (Makarevich 1977b): cor Acp.
 252. **Hertelidea botryosa** (Fr.) Printzen & Kantvilas – VI (Insarov & Pchelkin 1982): cor Pin.
 253. **Heterodermia speciosa** (Wulfen) Trevis. – VI (Kreyer 1913, Bely & Golubkov 2009b): cor, mus Acp, Pot. – Note: The report of this species by Golubkov and Kobzar (1996) is erroneous following Bely and Golubkov (2009b).
 254. **Hydropunctaria rheitrophila** (Zschacke) C. Keller, Gueidan & Thüs – (Yatsyna 2013f): sil.
 255. **Hypocenomyce scalaris** (Ach. ex Lilj.) M. Choisy – BR (Golubkov 1987, Kobzar 2006, Bely 2011a, 2012a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Ges 1960, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Kravchuk 2001, Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, 2015, Tsurykau et al. 2009, 2012b, Bely 2010a, 2011a, Yurchenko 2011, Golubkov 2011, Sobchanka et al. 2012, Yatsyna 2014d, Tsurykau & Czarnota 2014, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Kravchuk 2001, Kobzar 2006, Yatsyna 2010g, Bely 2011a), MI (Bachmann & Bachmann 1920, Golubkov & Vynaev 1981, Kravchuk & Kakareka 1995, Kobzar 1997, 2006, Yatsyna 2005, 2009d, 2010a, 2010f, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Kravchuk & Kakareka 1998, Yatsyna 2004, 2009b, 2012a, 2013a, Kobzar 2006, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1978, Insarov & Pchelkin 1982, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010f, 2011a, Bely 2011a): cor, lig Aln, Bet, Car, Lar, Pic, Pin, Pon, Pot, Qup, Qur, Til.
 256. **Hypogymnia farinacea** Zopf – BR (Golubkov 1985, 1987), GO (Tsurykau 2017c), GR (Bachmann & Bachmann 1920), MI (Golubkov et al. 2007b), VI (Golubkov & Kobzar 2007, Golubkov et al. 2007b): cor, lig Aln, Bet, Pin, Qur.
 257. **Hypogymnia physodes** (L.) Nyl. – BR (Tessendorff 1922, Suza 1928, Krawiec 1938, Golubkov 1987, Busko et al. 1995, Sidorovich & Gorbach 1998, Yurchenko & Golubkov 2003, Kobzar 2006, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1909, 1911, Kreyer 1913, Ljubitskaja 1914, Wyssotzky et al. 1925, Ges 1960, Palamarchuk et al. 1975, Gorbach & Getko 1978, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Kiselev et al. 1986, Busko et al. 1995, Kravchuk 2000, 2001, Yurchenko & Golubkov 2003, Tsurykau 2004, 2005, 2010, Timoshenkova & Tsurykau 2005, Kobzar 2006, Golubkov et

- al. 2007a, Tsurykau & Khramchankova 2008, 2010a, 2014, 2015, Tsurykau et al. 2009, 2012b, 2013b, Bely 2010a, 2011a, Golubkov 2011, Sobchanka et al. 2012, Tsurykau & Czarnota 2014), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Gorbach & Getko 1978, Golubkov 1987, 2014a, Busko et al. 1995, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2005, Kobzar 2006, Andreeva et al. 2006, Valko 2008, Yatsyna 2010g, 2013a, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, 1961, Boiko et al. 1981, Golubkov & Vynaev 1981, Kiselev et al. 1983, Shukanov et al. 1986, Golubkov & Rykovsky 1988, Busko et al. 1995, Kravchuk & Kakareka 1995, Vyazovskaya & Golubkov 1997, Kobzar 1997, 2006, Yurchenko & Golubkov 2003, Chernyshov 2003, 2004a, Yatsyna & Stefanovich 2005, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013a, 2013c, 2014a, 2014b, 2015c, Mavrishev & Dyukova 2008a, Bely 2010c, 2011a, Yurchenko 2011, Bely & Patapovich 2012, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Kreyer 1913, Savicz & Savicz 1924, Savicz 1925, Busko et al. 1995, Kravchuk & Kakareka 1998, Yatsyna 2004, 2009b, 2012a, 2013a, Kobzar 2006, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Gorbach & Getko 1978, Insarov & Pchelkin 1982, Kiselev et al. 1986, Golubkov 1991, Busko et al. 1995, Yurchenko & Golubkov 2003, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010f, 2011a, 2013a, 2017, Bely & Golubkov 2008, Yurchenko 2011, Bely 2011a), no exact locality (Gorbach 1956, 1973b, Belomesyatseva 2004, Yatsyna 2009e): cal, cor, fol, lig, mus, sil, ter Abi, Acp, Acs, Act, Ahi, Aln, Bet, Car, Coa, Fre, Jun, Mal, Pce, Pdo, Pic, Pin, Poa, Pob, Poc, Pon, Pot, Ppa, Pyr, Qup, Qur, Sal, Sor, Til, Ulm, on *Lobaria pulmonaria*.
258. **Hypogymnia tubulosa** (Schaer.) Hav. – BR (Golubkov 1987, Bely 2011a, 2011b, Bely & Kudin 2016), GO (Savicz 1911, Golubkov & Vynaev 1981, Golubkov et al. 2007a, Tsurykau & Khramchankova 2007, 2008, 2010a, 2015, Tsurykau et al. 2009, 2013b, Bely 2010a, 2011a, Golubkov 2011), GR (Bachmann & Bachmann 1920, Golubkov et al. 2007b, Yatsyna 2010g, 2013a, Bely 2011a, Golubkov 2014a), MI (Gorbach 1955, Golubkov & Vynaev 1981, Kobzar 2006, Bely 2010c, 2011a, Yurchenko 2011, Yatsyna 2012c, 2013c, 2014a, 2015c, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2009b, 2010a, Bely 2011a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Insarov & Pchelkin 1982, Golubkov 1991, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a, 2017, Bely & Golubkov 2008, Yurchenko 2011, Bely 2011a), no exact locality (Tomin 1937, Gorbach 1956, 1957, Yatsyna 2009e): cor, lig, sil Acp, Acs, Aln, Bet, Car, Coa, Mal, Pdo, Pic, Pin, Pon, Pot, Ppa, Pyr, Qup, Qur, Sal, Sor, Til, Ulm.
259. **Hypogymnia vittata** (Ach.) Parrique – GR (Bachmann & Bachmann 1920), MI (Gorbach 1962), MO (Savicz 1925, Yatsyna 2004), VI (Insarov & Pchelkin 1982, Kravchuk 2001, Yatsyna 2013a, 2017): cor Aln, Bet, Pic, Pin.
260. **Hypotrachyna revoluta** (Flörke) Hale – BR (Tsurykau et al. 2015), GO (Tsurykau et al. 2015), GR (Tsurykau et al. 2015), MI (Tsurykau et al. 2015), VI (Tsurykau et al. 2015): cor Aln, Bet, Car, Pic, Pot, Qur, Sor. – Note: Only records of *H. revoluta* published subsequent to Tsurykau et al. (2015) are included here as the species was historically confused with *H. afrorevoluta*. Earlier reports could refer to either species and require confirmation via examination of the supporting vouchers.
261. **Hypotrachyna afrorevoluta** (Krog & Swinscow) Krog & Swinscow – BR (Tsurykau et al. 2015), GO (Tsurykau et al. 2015), GR (Tsurykau et al. 2015), MI (Tsurykau et al. 2015), VI (Tsurykau et al. 2015): cor Aln, Bet, Qur.
262. **Icmadophila ericetorum** (L.) Zahlbr. – BR (Błoński 1888), GO (Golubkov 1992), GR (Gilibert 1781, Błoński 1889), MI (Savicz & Savicz 1924, Savicz 1925, Golubkov 1987, 1992, Bely & Golubkov 2008), MO (Savicz 1925), VI (Kobzar 2006, Bely & Golubkov 2008, Bely 2011a): lig, mus, ter Qur.
263. **Imshaugia aleurites** (Ach.) S.F. Mey. – BR (Golubkov 1987, Bely 2011a, Yatsyna 2013a, Tsurykau et al. 2013b, Bely & Kudin 2016), GO (Ges 1960, Golubkov & Vynaev 1981, Golubkov 1992, 2007, Kravchuk 2001, Golubkov et al. 2007b, Tsurykau & Khramchankova 2007, Tsurykau et al. 2009, 2013b, Bely 2010a, 2011a, Yurchenko 2011, Yatsyna 2014d, Tsurykau & Tsurikova 2017), GR (Golubkov 1987, 2014a, Golubkov et al. 2007b, Yatsyna 2010g, Bely 2011a), MI (Savicz 1925, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna 2005, 2009d, 2010a, 2013a, 2015c, Bely 2010c, 2011a), MO (Savicz 1925, Yatsyna 2004, 2009b, 2013a), VI (Kreyer 1913, Gorbach 1965d, Insarov & Pchelkin 1982,

- Golubkov 1991, 1992, Kravchuk 2001, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010f, 2011a, 2013a, 2017, Bely 2011a), no exact locality (Tomin 1937, Gorbach 1965d, Yatsyna 2009e): cor, lig Aln, Bet, Jun, Pic, Pin, Pot.
264. **Inoderma byssaceum** (Weigel) Gray – BR (Yatsyna 2014d), GR (Tomin 1956, Yatsyna 2016c), MI (Yatsyna 2014a, 2015c), MO (Kobzar 2006), VI (Yatsyna 2011e), no exact locality (Gorbach 1962): cor Acp, Qur, Til.
 265. **Jamesiella anastomosans** (P. James & Vězda) Lücking, Sérus. & Vězda – MO (Yatsyna & Motiejūnaite 2015): lig.
 266. **Lathagrium auriforme** (With.) Otálora, P.M. Jørg. & Wedin – VI (Bachmann & Bachmann 1920): ter.
 267. **Lathagrium cristatum** (L.) Otálora, P.M. Jørg. & Wedin – GR (Yatsyna 2015d): cal.
 268. **Lecania cyrtella** (Ach.) Th. Fr. – BR (Bely 2011a, Yatsyna 2014d), GO (Savicz 1911, Wyssotzky et al. 1925, Tsurykau & Khramchankova 2009b, Golubkov 2011), GR (Bachmann & Bachmann 1920, Golubkov & Khartanovich 2005, Golubkov 2014a), MI (Savicz 1925, Gorbach 1955, 1965b, Chernyshov 2003, Yurchenko 2011, Yatsyna 2012b, 2013b, 2013c, 2014a, 2014b, 2015c, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Savicz & Savicz 1924, Savicz 1925), VI (Kreyer 1913, Yatsyna 2011a, 2011e, 2017, Bely 2011a), no exact locality (Gorbach 1956, Makarevich 1960): cor, lig Acp, Ahi, Aln, Bet, Fre, Pot, Qur, Til.
 269. **Lecania cyrtellina** (Nyl.) Sandst. – GO (Golubkov 2011), MI (Yatsyna 2012d): cor Aln, Pot, Qur, Sal.
 270. **Lecania dubitans** (Nyl.) A. L. Sm. – BR (Golubkov 1987), GO (Savicz 1911, Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Golubkov 2011), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a), MI (Savicz 1925, Gorbach 1955, 1965b, Golubkov & Vynaev 1981), MO (Savicz & Savicz 1924, Savicz 1925), VI (Kreyer 1913, Kobzar 2006), no exact locality (Gorbach 1956, Makarevich 1960): cor Aln, Bet, Car, Pon, Pot, Pyr, Qup, Sal.
 271. **Lecania erysibe** (Ach.) Mudd – MI (Yatsyna 2012d): cal.
 272. **Lecania fuscella** (Schaer.) Körb. – VI (Kreyer 1913), MI (Gorbach 1955): cor, lig Pot.
 273. **Lecania hutchinsiae** (Nyl.) A.L. Sm. – VI (Yatsyna 2013f): cor Aln.
 274. **Lecania koerberiana** J. Lahm – GO (Savicz 1911, Wyssotzky et al. 1925, Golubkov 2011), MI (Savicz 1925, Gorbach 1955), MO (Savicz 1925): cor Pot.
 275. **Lecania naegelii** (Hepp) Diederich & van den Boom – GO (Savicz 1910, Golubkov 1992, Golubkov et al. 2007a), GR (Golubkov 1987, Golubkov & Khartanovich 2005), MI (Gorbach 1955, Golubkov & Yesis 1997b, Kobzar 2006, Bely 2011a, Bely & Nikolaichuk 2012, Yatsyna 2012c, 2014a, Yatsyna & Yurchenko 2013), MO (Kreyer 1913), VI (Golubkov 1992, Gapienko et al. 2014): cor Acp, Coa, Fre, Pic, Pot, Qur, Sal.
 276. **Lecania sylvestris** (Arnold) Arnold – GR (Yatsyna 2016c), MI (Yatsyna 2012d): cal.
 277. **Lecanora albella** (Pers.) Ach. – BR (Golubkov 1987, Kobzar 2006), GO (Savicz 1911, Wyssotzky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Golubkov 1992), GR (Bachmann & Bachmann 1920), MI (Bachmann & Bachmann 1920, Gorbach 1955, 1965b, Golubkov 1987, 1992), MO (Savicz 1925), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2010c), no exact locality (Gorbach 1956): cor Acp, Aln, Bet, Car, Fre, Pin, Pot, Qur, Sal, Sor, Til.

278. **Lecanora albellula** Nyl. – GO (Tsurykau & Khramchankova 2007, Golubkov 2011), GR (Bachmann & Bachmann 1920, Makarevich 1960): cor Pic, Pin.
279. **Lecanora allophana** Nyl. f. **allophana** – BR (Golubkov 1987, Kobzar 2006, Yatsyna 2013a, Bely 2016a, Bely & Kudin 2016), GO (Savicz 1909, Wyssotzky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Kravchuk 2001, Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2009a, Tsurykau et al. 2009, Bely 2010a, 2011a, Golubkov 2011, Sobchanka et al. 2012, Yatsyna 2014d), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, 2005, Yatsyna 2010g, 2016c), MI (Savicz 1909, Bachmann & Bachmann 1920, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Golubkov 1992, Kravchuk & Kakareka 1995, Kobzar 1997, 2006, Kravchuk 2001, Chernyshov 2003, 2004a, Yatsyna 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Savicz & Savicz 1924, Savicz 1925, Kravchuk 2001, Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Insarov & Pchelkin 1982, Golubkov 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Bely 2015b), no exact locality (Gorbach 1956, 1957, Golubkov 1992): cor Acn, Acp, Aln, Bet, Car, Euo, Fre, Pic, Pin, Poc, Pon, Pot, Qur, Sal, Sor, Til, Ulm. f. **sorediata** Vain. – GO (Golubkov 2011): cor Qur. – Note: The report on calcareous stone by Yatsyna (2005) likely refers to another taxon and the supporting voucher should be reexamined.
280. **Lecanora argentata** (Ach.) Malme – BR (Gorbach 1970, Golubkov 1987, 2011, Yurchenko & Golubkov 2003), GO (Wyssotzky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Kobzar 2006, Tsurykau & Khramchankova 2007, Golubkov 2011, Yatsyna 2013a), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yurchenko & Golubkov 2003, Golubkov & Khartanovich 2004b, 2005), MI (Bachmann & Bachmann 1920, Gorbach 1955, 1965b, Golubkov & Vynaev 1981, Golubkov 1992, Kobzar 1997, 2006, Chernyshov 2004a, Yatsyna 2005), MO (Savicz 1925), VI (Gorbach 1978, Insarov & Pchelkin 1982, Golubkov 1992, Kobzar 2006, Yurchenko 2011, Bely 2011a), no exact locality (Makarevich 1960, Golubkov 1992): cor, lig Acn, Acp, Aln, Bet, Car, Coa, Fre, Lon, Pic, Pin, Pon, Pot, Qup, Qur, Sor, Til.
281. **Lecanora carpinea** (L.) Vain. – BR (Krawiec 1938, Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2014d, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Kravchuk 2001, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2007, 2009a, Bely 2010a, 2011a, Golubkov 2011, Sobchanka et al. 2012, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005, Andreeva et al. 2006, Yatsyna 2010g, 2016c, Yurchenko 2011, Bely 2011a, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1992, Kobzar 1997, 2006, Kravchuk 2001, Chernyshov 2003, 2004a, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2010c, 2011a, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Kravchuk 2001, Kobzar 2006, Yatsyna 2009b, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1978, Insarov & Pchelkin 1982, Golubkov 1991, 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a, Yurchenko 2011, Bely 2011a), no exact locality (Gorbach 1956, 1957, 1962, Golubkov 1992): cor, lig Abi, Acp, Ahi, Aln, Bet, Car, Coa, Fre, Mal, Pce, Pic, Pin, Poa, Pon, Pot, Ppa, Pse, Pyr, Sal, Sor, Til, Qur, Ulm.
282. **Lecanora chlarotera** Nyl. – BR (Gorbach 1970, Golubkov 1987, Kobzar 2006, Yatsyna 2014d), GO (Golubkov & Vynaev 1981, Golubkov 1992, 2007, 2011, Kravchuk 2001, Kobzar 2006, Tsurykau & Khramchankova 2007), GR (Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, 2004b, 2005, Yatsyna 2010g), MI (Gorbach 1955, 1961, 1965b, 1970, Tomin 1956, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, 2004a, Yatsyna 2005, 2010a, 2012b, 2013b, 2014a, 2014b, 2015c, Kobzar 2006, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Gorbach 1970, Yatsyna 2009b, 2013a), VI (Gorbach & Mashenkova 1967, Gorbach 1978, Insarov & Pchelkin 1982, Golubkov 1991, 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2010c, 2017), no exact locality (Gorbach 1956, 1957, 1962, Golubkov 1992): cor Acp, Ahi, Aln, Bet, Car, Fre, Lon, Pic, Pin, Pon, Pot, Ppa, Qur, Sal, Sor, Til, Ulm.

283. **Lecanora compallens** van Herk & Aptroot – GO (Tsurykau et al. 2014a, Tsurykau & Czarnota 2014, Tsurykau & Khramchankova 2015, Tsurykau & Tsurikova 2017): cor Acp, Pin.
284. **Lecanora conizaeoides** Nyl. ex Cromb. – BR (Golubkov 1987), GO (Tsurykau & Khramchankova 2007), GR (Golubkov & Khartanovich 2004a), MI (Shukanov et al. 1986, Yatsyna 2013c): cor, lig Aln, Poc.
285. **Lecanora expallens** Ach. – BR (Gorbach 1973b), GO (Golubkov 1992, Kravchuk 2000, 2001, Tsurykau & Khramchankova 2015), MI (Shukanov et al. 1986, Kravchuk & Kakareka 1995, Kobzar 2006), MO (Kravchuk & Kakareka 1998), VI (Gorbach 1973b, Golubkov & Kobzar 1996), no exact locality (Tomin 1956, Gorbach 1962): cor Aln, Bet, Pin, Poc.
286. **Lecanora glabrata** (Ach.) Malme – BR (Golubkov 1987), GO (Wyssozky et al. 1925, Ges 1960, Golubkov 1992), GR (Golubkov 1987, Yatsyna 2016c), MI (Kobzar 2006), MO (Savicz & Savicz 1924, Savicz 1925), VI (Golubkov 1992), no exact locality (Gorbach 1956, 1973b, Golubkov 1992): cor Acp, Car, Coa, Fre.
287. **Lecanora impudens** Degel. – BR (Golubkov 1987, Yurchenko 2011), GO (Golubkov 1992), GR (Golubkov 1987, 1992, Yurchenko 2011), MI (Golubkov 1992, Golubkov & Yesis 1997b), VI (Insarov & Pchelkin 1982): cor Aln, Bet, Pin, Pot, Ppa.
288. **Lecanora intumescens** (Rebent.) Rabenh. – GO (Golubkov 2011), GR (Bachmann & Bachmann 1920), VI (Golubkov 1992): cor Aln, Qur.
289. **Lecanora leptyroides** (Nyl.) G.B.F. Nilsson – BR (Gorbach 1973b), MI (Gorbach 1955, 1973b, Tomin 1956), VI (Gorbach & Mashenkova 1967, Gorbach 1973b, Kobzar 2006), no exact locality (Gorbach 1962): cor Aln, Bet, Pic, Pot, Qur, Til, Ulm.
290. **Lecanora phaeostigma** (Körb.) Almb. – GO (Golubkov 2011), GR (Bachmann & Bachmann 1920), VI (Golubkov 1992): cor Pin.
291. **Lecanora polytropia** (Hoffm.) Rabenh. – BR (Golubkov 1987), GO (Golubkov & Vynaev 1981), GR (Bachmann & Bachmann 1920, Yatsyna 2016c), MI (Oksner 1925, Golubkov & Vynaev 1981, Golubkov 1997, Chernyshov 2003), MO (Savicz 1925), VI (Kreyer 1913, Bachmann & Bachmann 1920, Golubkov 1992, Yurchenko 2011): sil.
292. **Lecanora populicola** (DC.) Duby – BR (Golubkov 1987), GO (Savicz 1911, Wyssozky et al. 1925, Ges 1960, Golubkov 1992, 2011, Tsurykau & Khramchankova 2007), GR (Andreeva et al. 2006, Yurchenko 2011, Golubkov 2014a), MI (Gorbach 1955, 1965b, Golubkov 1992), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Gorbach 1978, Yatsyna 2017), no exact locality (Gorbach 1956, 1957, 1973b): cor Acp, Aln, Bet, Car, Pot, Qur, Sal, Sor.
293. **Lecanora pulicaris** (Pers.) Ach. – BR (Krawiec 1938, Golubkov 1987, Kobzar 2006, Bely 2011a, 2012b), GO (Savicz 1911, Kreyer 1913, Golubkov & Vynaev 1981, Golubkov 1992, Kravchuk 2001, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2007, 2015, Bely 2011a, Tsurykau et al. 2012b, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Yatsyna 2010g, Bely 2011a, Golubkov 2014a), MI (Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov 1992, Kravchuk & Kakareka 1995, Kobzar 1997, 2006, Kravchuk 2001, Chernyshov 2003, 2004a, Yatsyna 2009d, 2012b, 2013b, 2014a, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Kobzar 2006, Yatsyna 2004, Bely 2011a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Gorbach 1973b, 1978, Insarov & Pchelkin 1982, Golubkov 1991, 1992, Kobzar 2006, Golubkov & Kobzar 2007, Bely 2011a, Yatsyna 2017): cor, lig Acp, Aln, Bet, Fre, Jun, Pic, Pin, Pot, Pyr, Qup, Qur, Sal, Sor.
294. **Lecanora rupicola** (L.) Zahlbr. – BR (Golubkov 1987), GR (Golubkov 1992), MI (Golubkov 1987), VI (Golubkov 1987, Yatsyna 2011e): sil.

295. **Lecanora saligna** (Schr.) Zahlbr. – VI (Yatsyna 2011a): lig. – Note: The reports of *Lecanora saligna* (Schr.) Zahlbr. prior to Yatsyna (2011a) probably do not belong to that species as they were collected on *Alnus glutinosa* bark, and have a positive K⁺ yellow reaction (Gorbach 1970, Golubkov 2011). This species has negative spot reactions and is confined to lignum (Edwards et al. 2009). The specimens that serve as the basis for earlier reports should be reexamined to determine their current taxonomic status.
296. **Lecanora thysanophora** R.C. Harris – GO (Golubkov & Kukwa 2006, Tsurykau & Tsurikova 2017), GR (Golubkov & Kukwa 2006): cor Ahi, Aln, Qur, Til.
297. **Lecanora umbrina** (Ach.) A. Massal. – BR (Golubkov 1987), GO (Savicz 1909, Golubkov 1992), GR (Golubkov & Khartanovich 2004b), MI (Golubkov & Yesis 1997b, Chernyshov 2004a, Yatsyna 2013c), MO (Savicz & Savicz 1924, Savicz 1925), VI (Bachmann & Bachmann 1920, Kreyer 1913, Golubkov 1992): cal, cor, lig Aln, Pot, Sal, Sor.
298. **Lecanora varia** (Hoffm.) Ach. – BR (Suza 1928, Krawiec 1938, Golubkov 1987, Kobzar 2006, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1910, Wysotsky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2009a, Golubkov 2011), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g), MI (Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, 1965b, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna 2009d, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2015c, Bely 2011a), MO (Savicz 1925, Yatsyna 2009b, 2012a, 2013a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Golubkov 1991, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a, 2017): cor, lig Aln, Bet, Car, Lar, Mal, Pic, Pin, Pot, Pyr, Til, Qur, Sal.
299. **Lecidea fuscoatra** (L.) Ach. – BR (Golubkov 1987), GR (Yatsyna 2016c), MI (Golubkov et al. 2013), VI (Golubkov 1997): sil.
300. **Lecidea nylanderii** (Anzi) Th. Fr. – GO (Tsurykau 2013b, Tsurykau & Czarnota 2014, Tsurykau & Khramchankova 2015), VI (Insarov & Pchelkin 1982): cor Pin.
301. **Lecidea sphaerella** Hedl. – MI (Kobzar 2006), VI (Golubkov 1992): cor Pot.
302. **Lecidea turgidula** Fr. – MI (Yatsyna 2013a), no exact locality (Tomin 1939): lig.
303. **Lecidella anomaloides** (A. Massal.) Hertel & H. Kiliass – GO (Golubkov 2007), GR (Yurchenko 2011), MI (Golubkov & Vynaev 1981, Chernyshov 2003), VI (Bachmann & Bachmann 1920, Yurchenko 2011): sil.
304. **Lecidella carpathica** Körb. – VI (Kreyer 1913): sil.
305. **Lecidella elaeochroma** (Ach.) M. Choisy – BR (Bely 2011a, 2011b, Yatsyna 2013a, 2014d), GO (Golubkov et al. 2007a, Tsurykau & Khramchankova 2009a, Golubkov 2011), GR (Bachmann & Bachmann 1920, Golubkov & Khartanovich 2004a, 2004b, 2005, Golubkov 2014a, Yatsyna 2013a, 2016c), MI (Bachmann & Bachmann 1920, Yatsyna 2010a, 2012b, 2012c, 2013a, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Bely 2011a, Yatsyna 2013a), VI (Bachmann & Bachmann 1920, Yurchenko 2011, Bely 2011a, Yatsyna 2013a, 2011e, 2017): cor Abi, Acp, Aln, Bet, Fre, Pic, Pon, Pot, Ppa, Pyr, Qur, Sor, Til, Pot.
306. **Lecidella euphorea** (Flörke) Hertel – BR (Suza 1928, Kobzar 2006, Bely 2011a, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wysotsky et al. 1925, Ges 1960, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Kravchuk 2001, Kobzar 2006, Tsurykau & Khramchankova 2009a, Tsurykau et al. 2009, Bely 2010a, 2011a, Tsurykau & Tsurikova 2017), GR (Golubkov & Khartanovich 2004a, Yurchenko 2011, Bely 2011a), MI (Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Kravchuk & Kakareka 1995, Kobzar 1997, 2006, Chernyshov 2003, 2004a, Yatsyna 2005, Bely 2011a, Bely & Nikolaichuk 2012), MO (Savicz 1925, Kravchuk 2001, Kobzar 2006, Yatsyna 2009b, Bely 2011a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov 1991, Kobzar 2006, Yatsyna 2008, 2010c, Bely

2011a), no exact locality (Gorbach 1956, 1957): cor, lig Acp, Aln, Bet, Car, Coa, Fre, Pic, Poa, Poc, Pon, Pot, Qur, Sal, Sor, Til, Ulm.

307. **Lecidella flavosorediata** (Vězda) Hertel & Leuckert – VI (Gapienko et al. 2014): cor Fre.
308. **Lecidella laureri** (Hepp) Körb. – BR (Golubkov 1987), GR (Golubkov 1987), MI (Golubkov 1987): cor, lig Car, Fre, Pot.
309. **Lecidella stigmathea** (Ach.) Hertel & Leuckert – GR (Yatsyna 2016c), MI (Gorbach 1970), VI (Kreyer 1913): cal, sil.
310. **Leimonis erratica** (Körb.) R. C. Harris & Lendemer – BR (Golubkov 1987), GR (Bachmann & Bachmann 1920), VI (Bachmann & Bachmann 1920): sil.
311. **Lepra albescens** (Huds.) Hafellner – BR (Tessendorff 1922, Golubkov 1987, Kobzar 2006, Bely 2011a, Bely & Kudin 2016), GO (Savicz 1909, Wyssotzky et al. 1925, Ges 1960, Gorbach 1973b, Golubkov & Vynaev 1981, Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2009a, Tsurykau et al. 2009, Bely 2010a, 2011a, Golubkov 2011, Yatsyna 2014d, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Gorbach 1973b, Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, Bely 2011a), MI (Bachmann & Bachmann 1920, Gorbach 1961, 1965c, 1973b, Golubkov & Vynaev 1981, Chernyshov 2003, Yatsyna 2005, 2010a, 2013b, 2013c, 2014a, 2014b, 2015c, Kobzar 2006, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2009b), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Gorbach 1978, Yatsyna 2008, 2010c, 2017, Bely 2011a), no exact locality (Gorbach 1973b, Yatsyna 2009e): cal, cor, mus Acp, Aln, Bet, Car, Fre, Pic, Pot, Qur, Sal, Sor, Til, Ulm.
312. **Lepra amara** (Ach.) Hafellner – BR (Golubkov 1987, Kobzar 2006, Yurchenko 2011, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1911, Wyssotzky et al. 1925, Ges 1960, Palamarchuk et al. 1975, Golubkov & Vynaev 1981, Kravchuk 2001, Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau et al. 2009, Bely 2010a, 2011a, Golubkov 2011, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2016c, Bely 2011a), MI (Gorbach 1955, 1961, Golubkov & Vynaev 1981, Kravchuk & Kakareka 1995, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Kobzar 2006, Bely 2010c, 2011a, Yurchenko 2011, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2009b, 2012a, Bely 2011a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Gorbach 1978, Insarov & Pchelkin 1982, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010a, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, 1973b): cor Acp, Aln, Bet, Car, Coa, Fre, Pic, Pin, Pot, Qur, Sal, Sor, Til, Ulm.
313. **Lepra multipuncta** (Turner) Hafellner – BR (Golubkov 1987), GO (Wyssotzky et al. 1925, Golubkov 2011, Tsurykau et al. 2016a), GR (Golubkov 1987), MI (Bachmann & Bachmann 1920), MO (Savicz 1925), VI (Golubkov 1987), no exact locality (Gorbach 1973b): cor, mus Aln, Bet, Car, Sor, Til.
314. **Lepra ophthalmiza** (Nyl.) Hafellner – VI (Golubkov 1992): not indicated.
315. **Lepra trachythallina** (Erichsen) Lendemer & R.C. Harris – GO (Wyssotzky et al. 1925), MO (Savicz 1925), VI (Gorbach 1973b, Golubkov 1992), no exact locality (Gorbach 1956, 1957): cor Bet, Car, Fre.
316. **Lepraria eburnea** J.R. Laundon – BR (Golubkov & Kukwa 2006, Tsurykau et al. 2016b), GR (Tsurykau et al. 2016b): cor, ter Aln, Qur. – Note: Only records of *L. eburnea* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the genus without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
317. **Lepraria ecorticata** (J.R. Laundon) Kukwa – BR (Tsurykau et al. 2016b), GO (Tsurykau et al. 2016b), GR (Tsurykau et al. 2016b): cor Fre, Pot, Til. – Note: Only records of *L. ecorticata* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the genus

without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.

318. **Lepraria elobata** Tønsberg – BR (Tsurykau et al. 2016b), GO (Tsurykau & Khramchankova 2011a, 2015, Tsurykau et al. 2012b, 2016b, Tsurykau & Tsurikova 2017), GR (Czyżewska & Kukwa 2005, Tsurykau et al. 2014b, 2016b), MI (Golubkov & Kukwa 2006, Tsurykau et al. 2016b), MO (Tsurykau et al. 2016b), VI (Golubkov & Kukwa 2006, Tsurykau et al. 2016b): cor, lig Bet, Pic, Pin, Pot, Qur. – Note: Only records of *L. elobata* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the genus without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
319. **Lepraria finkii** (B. de Lesd.) R.C. Harris – BR (Bely 2011a, Tsurykau et al. 2016b, Bely & Kudin 2016), GO (Bely 2010a, 2011a, Tsurykau 2013a, Tsurykau & Khramchankova 2015, Tsurykau et al. 2016b, Tsurykau & Tsurikova 2017), GR (Tsurykau et al. 2016b), MI (Bely 2011a, Tsurykau et al. 2016b), MO (Bely 2011a, Tsurykau et al. 2016b), VI (Bely 2011a, Tsurykau et al. 2016b): cor, cal, lig, ter Acp, Aln, Bet, Pic, Pin, Qur, Sor. – Note: Only records of *L. finkii* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the genus without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
320. **Lepraria incana** (L.) Ach. – BR (Golubkov & Kukwa 2006, Tsurykau et al. 2016b, Bely & Kudin 2016), GO (Golubkov & Kukwa 2006, Tsurykau & Khramchankova 2011a, 2015, Tsurykau et al. 2012b, 2016b, Tsurykau & Tsurikova 2017), GR (Golubkov & Kukwa 2006, Tsurykau et al. 2014b, 2016b), MI (Czyżewska & Kukwa 2005, Tsurykau et al. 2016b), MO (Tsurykau et al. 2016b), VI (Tsurykau et al. 2016b): cor, lig Abi, Acp, Aln, Bet, Car, Coa, Pic, Pin, Pot, Pyr, Qur, Sor, Til. – Note: Only records of *L. incana* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the genus without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
321. **Lepraria jackii** Tønsberg – BR (Golubkov & Kukwa 2006, Tsurykau et al. 2016b, Bely & Kudin 2016), GO (Tsurykau & Khramchankova 2011a, 2015, Tsurykau et al. 2012b, 2016b), GR (Golubkov & Kukwa 2006, Tsurykau et al. 2016b), MI (Golubkov & Kukwa 2006, Tsurykau et al. 2016b), MO (Tsurykau et al. 2016b), VI (Golubkov & Kukwa 2006, Tsurykau et al. 2016b): cor, lig Pic, Pin, Qur. – Note: Only records of *L. jackii* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the genus without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
322. **Lepraria neglecta** (Nyl.) Erichsen – VI (Golubkov & Kukwa 2006): sil. – Note: Only records of *L. neglecta* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the genus without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
323. **Lepraria rigidula** (B. de Lesd.) Tønsberg – GO (Tsurykau et al. 2016b): cor, ter Pin. – Note: Only records of *L. rigidula* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the genus without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
324. **Lepraria vouauxii** (Hue) R.C. Harris – BR (Tsurykau et al. 2016b), GO (Tsurykau et al. 2014a, 2016b), GR (Tsurykau et al. 2014b): cor Acp, Aln, Fre, Mal, Qur. – Note: Only records of *L. vouauxii* published with TLC data are included here as the species cannot be distinguished with certainty from other members of the genus without chemical analysis. Reports based on specimens that were not explicitly stated to have been studied with TLC require verification.
325. **Leptogium cyanescens** (Rabenh.) Körb. – MI (Yatsyna 2013b), no exact locality (Golubkov & Kobzar 2005): cor Til.

326. **Leptogium rivulare** (Ach.) Mont. – GO (Golubkov 1992): cor, lig Qur, Sal.
327. **Leptogium saturninum** (Dicks.) Nyl. – GR (Błoński 1889), MI (Bachmann & Bachmann 1920), MO (Savicz & Savicz 1924, Savicz 1925), VI (Kreyer 1913, Yatsyna 2017): cor Acp, Ber, Pot.
328. **Leptorhaphis atomaria** (Ach.) Szatala – GR (Bachmann & Bachmann 1920), VI (Yatsyna 2011a): cor Qur, Pot.
329. **#Leptorhaphis epidermidis** (Ach.) Th. Fr. – GO (Savicz 1911, Golubkov 1992, Yurchenko 2011), GR (Bachmann & Bachmann 1920), MI (Gorbach 1973b, Yatsyna 2015c), VI (Kreyer 1913, Kobzar 1983, Golubkov & Kobzar 2007): cor Bet.
330. **Leptorhaphis lucida** Körb. – VI (Kreyer 1913), no exact locality (Gorbach 1962): cor Bet, Pot.
331. **Lichenomphalia umbellifera** (L.: Fr.) Redhead, Lutzoni, Monclavo & Vilgalys – BR (Serzhanina 1984), GO (Serzhanina 1984, Bely & Yatsyna 2013), MI (Kuprevich 1931, Serzhanina 1984, Yatsyna & Golubkov 2009, Bely 2011a), VI (Bely 2011a, Yatsyna 2011e, 2017, Bely & Yatsyna 2013): lig, mus, roo, ter Pic.
332. **Lobaria pulmonaria** (L.) Hoffm. – BR (Tessendorff 1922, Golubkov 1987, Golubkov & Yatsyna 2010, Yatsyna 2013e, 2015e), GO (Wyssotzky et al. 1925, Ges 1960, Palamarchuk et al. 1975, Golubkov & Vynaev 1981, Golubkov 1992, 2010, Tsurykau & Khramchankova 2006, Golubkov & Yatsyna 2010, Yatsyna 2011d, 2015e), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 1992, 2014a, Yatsyna 2013e), MI (Oksner 1924, Savicz 1925, Gorbach 1955, 1961, 1965b, Golubkov & Vynaev 1981, Yatsyna 2006a, Golubkov & Yatsyna 2010, Yatsyna 2010h, 2015e, Bely 2010b), MO (Meier 1901, Savicz & Savicz 1924, Savicz 1925, Golubkov 1987, 1992, Yatsyna 2009b, Golubkov & Yatsyna 2010), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov & Kobzar 2005, Bely 2008b, Golubkov & Yatsyna 2010, Yatsyna 2011a, 2013e, 2015e, 2017), no exact locality (Gorbach 1957, 1973b): cor, lig, ter Acp, Aln, Bet, Car, Coa, Fre, Pic, Pot, Qup, Qur, Sal, Til, Ulm.
333. **Lobaria scrobiculata** (Scop.) DC. – MO (Savicz & Savicz 1924), no exact locality (Gorbach 1956, 1957): cor Acp, Car, Pic, Sal, Ulm. – Note: *Lobaria scrobiculata* was also reported by Palamarchuk et al. (1975) from Pripyatsky national park. However the report did not include any specific data, and no voucher has been found in GSU. Therefore the report seems to be doubtful and it is not included in the present list.
334. **Loxospora elatina** (Ach.) A. Massal. – GO (Golubkov 2011), MI (Tomin 1956), VI (Tomin 1956, Golubkov & Kukwa 2006, Bely 2011a): cor Bet, Fre, Pic.
335. **Megalospora sanguinaria** (L.) A. Massal. – GR (Gilibert 1781, 1792), VI (Tomin 1956, Golubkov 1993, Golubkov & Kobzar 2007, Bely 2011a, Yatsyna 2011e): cor, lig Pin.
336. **Megaspora verrucosa** (Ach.) Hafellner & V. Wirth – MI (Gorbach 1962), VI (Kreyer 1913): cor Pot.
337. **Melanelixia glabra** (Schaer.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – GO (Tsurykau & Khramchankova 2008, 2010a), MI (Yatsyna 2012b, 2013b, 2014a): cor Acp, Fre, Til.
338. **Melanelixia glabratula** (Lamy) Sandler & Arup – BR (Golubkov 1987, Yurchenko & Golubkov 2003, Kobzar 2006, Bely 2011a, Tsurykau et al. 2013b, Yatsyna 2014d, Bely & Kudin 2016), GO (Wyssotzky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Golubkov 1987, 1992, 2007, 2011, Kravchuk 2001, Tsurykau 2005, Golubkov et al. 2007b, Tsurykau & Khramchankova 2008, Tsurykau et al. 2009, 2013b, Bely 2010a, 2011a), GR (Bachmann & Bachmann 1920, Golubkov 1992, 2014a, Golubkov & Khartanovich 2004b, Golubkov et al. 2007b, Yatsyna 2010g, 2016c, Bely 2011a), MI (Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1987, 1992, Kravchuk 2001, Chernyshov 2003, Mavrishev & Dyukova 2008b, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013), MO (Savicz & Savicz 1924, Savicz 1925, Kravchuk 2001, Kobzar 2006, Yatsyna 2009b, 2012a, Bely 2011a), VI (Gorbach & Mashenkova 1967,

Golubkov 1987, 1991, 1992, Kravchuk 2001, Golubkov & Kobzar 2007, Yatsyna 2010c, 2011a, 2017, Bely 2011a, Gapienko et al. 2014), no exact locality (Gorbach 1956, 1957): cor Acp, Acs, Aln, Bet, Car, Coa, Fre, Mal, Pdo, Pic, Pin, Pon, Pot, Qur, Sal, Sor, Til. – Note: Many of the records of *M. glabratula* included here were originally reported as *M. fuliginosa* because the two species were previously considered to be synonymous by many authors. Following Arup and Sandler Berlin (2011) the material is referred to *M. glabratula*.

339. **Melanelixia subargentifera** (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – BR (Golubkov 1987, Yatsyna 2014d), GO (Savicz 1909, Kreyer 1913, Ges 1960, Golubkov 1987, 1992, Kravchuk 2001, Golubkov et al. 2007b, Tsurykau & Khramchankova 2007, 2008, Bely 2011a, Tsurykau et al. 2013b), GR (Golubkov 1987, 1992, 2014a, Golubkov & Khartanovich 2005, Yatsyna 2016c), MI (Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1987, 1992, Golubkov & Yesis 1997b, Chernyshov 2003, Yurchenko 2011, Yatsyna 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Golubkov et al. 2007b, Yatsyna 2009b, Bely 2011a), VI (Kreyer 1913, Golubkov 1992, Kravchuk 2001, Kobzar 2006, Yatsyna 2010c, 2011a, Gapienko et al. 2014), no exact locality (Gorbach 1956, Golubkov 1992, Yatsyna 2009e): cor, lig Acp, Aln, Ahi, Bet, Car, Fre, Mal, Pce, Pic, Poa, Poc, Pon, Pot, Qur, Sal, Til, Ulm.
340. **Melanelixia subaurifera** (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – BR (Suza 1928, Krawiec 1938, Golubkov 1987, Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2007, 2008, 2010a, 2015, Tsurykau et al. 2009, 2013b, Bely 2010a, 2011a, Tsurykau 2010, Yurchenko 2011, Golubkov 2011), GR (Bachmann & Bachmann 1920, Golubkov & Khartanovich 2004a, 2005, Yatsyna 2010g, 2013a, 2016c, Bely 2011a, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna 2005, 2010a, 2014a, 2015c, Kobzar 2006, Bely 2010c, 2011a, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2009b, Bely 2011a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1991, 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2009a, 2010c, 2010d, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, Golubkov 1992, Yatsyna 2009e): cor, lig Acd, Acp, Acs, Ahi, Aln, Bet, Car, Coa, Fre, Jun, Lar, Mal, Pce, Pdo, Pic, Pin, Pob, Poc, Pon, Pot, Ppa, Pyr, Qup, Qur, Sal, Sor, Til, Ulm, on *Lobaria pulmonaria*.
341. **Melanohalea elegantula** (Zahlbr.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – BR (Bely 2011b), MI (Bely 2011a, Yatsyna 2014a), VI (Insarov & Pchelkin 1982, Bely 2011a): cor Pic, Poa, Qur.
342. **Melanohalea exasperata** (De Not.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – BR (Filipowicz 1881, Suza 1928, Krawiec 1938, Golubkov 1987), GO (Savicz 1909, Kreyer 1913, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Golubkov 1992, Kravchuk 2001, Tsurykau & Khramchankova 2007, 2008, 2010a, Tsurykau et al. 2009, 2013b, Yatsyna 2013a), GR (Bachmann & Bachmann 1920, Golubkov 1987, 1992, 2014a), MI (Bachmann & Bachmann 1920, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1992, Mavrishev & Dyukova 2008a, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Kobzar 2006, Yatsyna 2009b, Bely 2011a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992, Kravchuk 2001, Yatsyna 2010c, 2011a, Bely 2011a), no exact locality (Gorbach 1956, 1957, Yatsyna 2009e): cor, lig Acp, Acs, Aln, Bet, Car, Fre, Pic, Pin, Poa, Pon, Pot, Pyr, Qur, Sal, Sor, Til, Ulm.
343. **Melanohalea exasperatula** (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – BR (Golubkov 1987, Yurchenko & Golubkov 2003, Yurchenko 2011, Bely 2011a, Yatsyna 2014d, Bely & Kudin 2016), GO (Savicz 1911, Kreyer 1913, Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Golubkov 1987, 2011, Kravchuk 2001, Tsurykau 2005, 2010, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, 2010a, 2015, Tsurykau et al. 2009, 2013b, Bely 2010a, 2011a), GR (Bachmann & Bachmann 1920, Golubkov 1992, 2014a, Kravchuk 2001, Yurchenko & Golubkov 2003, Golubkov & Khartanovich 2004a, Andreeva et al. 2006, Golubkov et al. 2007b, Yatsyna 2010g, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz 1925, Gorbach 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Golubkov 1987, 1992, Kravchuk & Kakareka 1995, Yurchenko & Golubkov 2003, Chernyshov

- 2003, 2004a, Yatsyna & Stefanovich 2005, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2010c, 2011a, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Savicz & Savicz 1924, Savicz 1925, Kravchuk 2001, Yatsyna 2009b, 2013a, Bely 2011a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992, Yurchenko & Golubkov 2003, Kobzar 2006, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1957, 1962, Yatsyna 2009e): cor, fol, lig, met, sil Acd, Acp, Acs, Ahi, Aln, Bet, Car, Euo, Fre, Lar, Mal, Mas, Pce, Pdi, Pdo, Pic, Pin, Poa, Pob, Poc, Pon, Pot, Qur, Sal, Sor, Til, Ulm, on *Lobaria pulmonaria*.
344. **Melanohalea olivacea** (L.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – BR (Krawiec 1938, Kobzar 2006), GO (Savicz 1909, Ges 1960, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Kravchuk 2001, Kobzar 2006, Tsurykau & Khramchankova 2007, 2008, 2010a, Tsurykau et al. 2009, 2013b, Yurchenko 2011, Golubkov 2011, Yatsyna 2014d), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Yatsyna 2010g, 2013a, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1992, Kobzar 2006, Mavrishev & Dyukova 2008a, Bely 2011a), MO (Savicz 1925, Yatsyna 2009b, 2013a) VI (Kreyer 1913, Gorbach & Mashenkova 1967, Insarov & Pchelkin 1982, Golubkov 1991, 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, 1962, Golubkov 1992, Yatsyna 2009e): cor, ter Acp, Acs, Aln, Bet, Car, Fre, Mal, Pce, Pic, Pon, Pot, Pyr, Qur, Sal, Sor, Til, Ulm. – Note: The report on stone by Bachmann and Bachmann (1920) likely refers to another taxon. As the Bachmann herbarium was destroyed during World War II, there is no chance to reexamine the supporting voucher and thus the report is not included in the present list.
345. **Melanohalea septentrionalis** (Lynge) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – VI (Bely 2011a): cor Bet.
346. **Menegazzia terebrata** (Hoffm.) A. Massal. – BR (Golubkov 1986, Yatsyna 2013e, 2014d), GO (Wyssotzky et al. 1925, Golubkov 1986, Yatsyna 2011d), GR (Golubkov 1986, 2014a, Yatsyna 2009e), MI (Gorbach 1965d, Golubkov 1987, 1992, Bely 2010b, 2011a, 2014, Yatsyna 2013e, 2015c, Golubkov et al. 2013), MO (Savicz & Savicz 1924, Savicz 1925, Golubkov 1992), VI (Golubkov 1986, 1987, Golubkov & Kobzar 2007, Bely 2008b, 2010b, Yatsyna 2013e, 2017), no exact locality (Gorbach 1957, 1962): cor Aln, Bet, Car, Pic, Pin, Pon, Pot, Qur.
347. **Micarea cinerea** (Schaer.) Hedl. – GO (Golubkov & Vynaev 1981), GR (Bachmann & Bachmann 1920), MI (Golubkov & Yesis 1997a): cor Pin, Sor.
348. **Micarea denigrata** (Fr.) Hedl. – GO (Yatsyna 2013d, Tsurykau & Czarnota 2014), GR (Bachmann & Bachmann 1920, Makarevich 1960), MI (Bachmann & Bachmann 1920, Yatsyna & Yurchenko 2013): cor, lig Pin, Jun.
349. **Micarea elachista** (Körb.) Coppins & R. Sant. – GO (Tsurykau & Czarnota 2014): cor Pin.
350. **Micarea lynceola** (Th. Fr.) Palice – GR (Bachmann & Bachmann 1920): sil.
351. **Micarea melaena** (Nyl.) Hedl. – BR (Bely 2011a), GO (Tsurykau & Czarnota 2014), MI (Yatsyna 2015c), MO (Yatsyna 2013a), VI (Bely 2011a, Yatsyna 2017): cor, lig Pic, Pin.
352. **Micarea micrococca** (Körb.) Gams ex Coppins – GO (Tsurykau & Czarnota 2014), VI (Gapienko et al. 2014): cor Pin.
353. **Micarea misella** (Nyl.) Hedl. – GO (Tsurykau & Czarnota 2014), VI (Gapienko et al. 2014, Yatsyna 2017): cor, lig Pic, Pin.
354. **Micarea nitschkeana** (J. Lahm ex Rabenh.) Harm. – GO (Golubkov 2011, Tsurykau 2017b), GR (Bachmann & Bachmann 1920), MI (Bachmann & Bachmann 1920, Savicz 1925): cor Aln, Bet, Pin, Pot.
355. **Micarea peliocarpa** (Anzi) Coppins – GO (Yatsyna 2012d), MI (Yatsyna 2012d): cor Pin.

356. **Micarea prasina** Fr. – BR (Golubkov 1987), GO (Golubkov & Vynaev 1981, Tsurykau & Khramchankova 2011a), MI (Yatsyna 2010f, 2015c, Yatsyna & Yurchenko 2013), MO (Yatsyna 2013a), VI (Kobzar 2006, Yatsyna 2010c, 2011a, 2017, Yurchenko 2011, Bely 2011a): cor, lig Fre, Jun, Pic, Pin, Qur.
357. **#Microcalicium arenarium** (Hampe ex A. Massal.) Tibell – BR (Golubkov 1987): roo.
358. **#Microcalicium disseminatum** (Ach.) Vain. – BR (Golubkov 1987), GR (Golubkov 1987), MI (Golubkov 1987, Yatsyna 2010f), VI (Golubkov 1987, Yatsyna 2017): cor, lig Pic, Pin, Qur.
359. **Montanelia sorediata** (Ach.) Divakar, A. Crespo, Wedin & Essl. – BR (Golubkov 1992), GO (Kobzar 2006), GR (Golubkov & Kobzar 2005), MI (Bachmann & Bachmann 1920, Gorbach 1973b, Golubkov 1992, Chernyshov 2003, Golubkov et al. 2007b, Yurchenko 2011), MO (Savicz 1925), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Bely 2008b), no exact locality (Golubkov 1992): sil.
360. **Mycobilimbia carneoalbida** (Müll. Arg.) S. Ekman & Printzen – BR (Yatsyna 2013f), GR (Yatsyna 2013f, 2016c), MI (Yatsyna 2010a), VI (Kreyer 1913, Yatsyna 2011a, 2013f): mus, ter, on *Peltigera rufescens*.
361. **Mycobilimbia pilularis** (Körb.) Hafellner & Türk – BR (Kobzar 2006), MI (Golubkov & Vynaev 1981), VI (Golubkov 1992): cor, ter Acp.
362. **+Mycocalicium subtile** (Pers.) Szatala – BR (Bely & Golubkov 2009a, Bely 2011b), GO (Golubkov 1992, Yatsyna 2012e), GR (Kobzar 2006), MI (Golubkov & Vynaev 1981, Golubkov & Yesis 1997a, Kobzar 2006, Yatsyna 2009d, 2014a, 2015c, Bely & Golubkov 2009a), VI (Kreyer 1913, Bely & Golubkov 2009a, Yatsyna 2010c, 2017, Bely 2011a), no exact locality (Golubkov & Titov 1990): lig Pic, Pin.
363. **+Mycomicrothelia melanospora** (Hepp) D. Hawksw. – VI (Kreyer 1913, Yatsyna 2011e): cor Bet.
364. **Myriolecis crenulata** (Ach.) Śliwa, Zhao Xin & Lumbsch – BR (Golubkov 1987, Yatsyna 2014d), GO (Tsurykau & Khramchankova 2007, 2009a, Golubkov 2011, Sobchanka et al. 2012, Tsurykau & Tsurikova 2017), GR (Golubkov 1987, 2014a, Yatsyna 2016c), MI (Golubkov & Vynaev 1981, Golubkov 1992, 1997, Chernyshov 2003, 2004a, Yatsyna 2007a, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013), VI (Kreyer 1913, Golubkov 1992, Yatsyna 2008, 2011a, 2011e, Yurchenko 2011): cal, sil. – Note: The report on lignum by Kreyer (1913) likely refers to another taxon and the supporting voucher should be reexamined.
365. **Myriolecis dispersa** (Pers.) Śliwa, Zhao Xin & Lumbsch – BR (Golubkov 1987), GO (Savicz 1911, Golubkov et al. 2007a, Tsurykau & Khramchankova 2007, 2009a, Golubkov 2011, Sobchanka et al. 2012, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Yatsyna 2010g, Golubkov 2014a), MI (Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2004a, Yatsyna 2012b, 2012c), MO (Yatsyna 2009b), VI (Kobzar 1983, Kravchuk 2001, Yatsyna 2011a, 2011e): cal, sil, ter.
366. **Myriolecis hagenii** (Ach.) Śliwa, Zhao Xin & Lumbsch – GO (Kravchuk 2000, 2001, Golubkov 2007, Tsurykau & Khramchankova 2007, 2009a, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005), MI (Kravchuk & Kakareka 1995, Chernyshov 2003, 2004a, Bely 2011a, Bely & Nikolaichuk 2012), MO (Kravchuk & Kakareka 1998), VI (Bachmann & Bachmann 1920, Kobzar 1983, Golubkov 1987, 1992): cor, lig Abi, Acp, Ahi, Aln, Fre, Pic, Pon, Pot, Qur, Sor, Til, Ulm.
367. **Myriolecis sambuci** (Pers.) Clem. – MI (Yatsyna 2005), VI (Kreyer 1913), no exact locality (Gorbach 1962): cor, lig Pot.
368. **#Naetrocymbe punctiformis** (Pers.) R. C. Harris – GR (Bachmann & Bachmann 1920), MI (Gorbach 1955), MO (Kreyer 1913), VI (Kreyer 1913, Yurchenko 2011, Yatsyna 2011e): cor Aln, Bet, Pot, Qur.

369. **Nephroma arcticum** (L.) Torss. – MI (Golubkov & Kobzar 2005): ter.
370. **Nephroma bellum** (Spreng.) Tuck. – MI (Savicz 1925): cor Pic.
371. **Nephroma parile** (Ach.) Ach. – MI (Savicz 1925): cor Qur.
372. **Nephroma resupinatum** (L.) Ach. – MI (Savicz 1925): cor Pic. – Note: The report by Yatsyna (2009b) may be erroneous because the species was not listed in later papers (e.g. Yatsyna 2015e). The supporting voucher should be reexamined before the report is included here.
373. **Nephromopsis chlorophylla** (Willd.) Divakar, Crespo & Lumbsch – BR (Krawiec 1938, Golubkov 1987, Bely 2011a, Yatsyna 2011b, Tsurikova 2013, Bely & Kudin 2016), GO (Savicz 1911, Ges 1960, Golubkov & Vynaev 1981, Kravchuk 2001, Tsurykau & Khramchankova 2007, 2008, Tsurykau et al. 2009, Yatsyna 2011b, Golubkov 2011, Tsurikova 2013), GR (Bachmann & Bachmann 1920, Yatsyna 2009e, 2010g, 2011b, 2016c, Bely 2011a, Golubkov 2014a), MI (Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1992, Vyazovskaya & Golubkov 1997, Kravchuk 2001, Chernyshov 2003, Yatsyna 2005, 2010a, 2011b, 2014a, 2015c, Bely 2010c, 2011a, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013), MO (Savicz & Savicz 1924, Savicz 1925, Kravchuk 2001, Yatsyna 2009b, 2011b), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov & Kobzar 2007, Yatsyna 2008, 2009e, 2010c, 2010d, 2011a, 2011b, 2017, Bely 2011a): cor, lig, ter Abi, Acp, Aln, Bet, Car, Jun, Pce, Pic, Pin, Pon, Pot, Pyr, Qup, Qur, Sal, Til.
374. **Nephromopsis ciliaris** (Ach.) Hue – no exact locality (Tomin 1937): cor.
375. **Ochrolechia alboflavescens** (Wulfen) Zahlbr. – GR (Kukwa 2011), MI (Kukwa 2011), VI (Kukwa 2011): cor Bet, Pin, Qur.
376. **Ochrolechia arborea** (Kreyer) Almb. – BR (Golubkov 1987), GO (Kreyer 1913, Ljubitzkaja 1914, Ges 1960, Golubkov 2011, Bely 2011a, Tsurykau et al. 2014a), GR (Golubkov 2014a), MI (Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1992, Bely 2011a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992), no exact locality (Gorbach 1956, 1957): cor, lig Acp, Aln, Car, Fre, Pic, Pin, Pot, Qur, Sal, Sor, Til.
377. **Ochrolechia bahusiensis** H. Magn. – MI (Tsurykau et al. 2014a): cor Bet.
378. **Ochrolechia microstictoides** Räsänen – GO (Tsurykau 2017c), MI (Tomin 1956), VI (Gorbach 1973b): cor Bet, Pin.
379. **Ochrolechia pallescens** (L.) A. Massal. – BR (Golubkov 1987), GO (Savicz 1911, Wyssotzky et al. 1925, Yurchenko 2011, Tsurykau et al. 2014a), GR (Golubkov 1987, Yurchenko & Golubkov 2003), VI (Kreyer 1913, Golubkov 1992, Golubkov & Kobzar 2007): cor, lig Aln, Bet, Pin, Qur, Til.
380. **Opegrapha herbarum** Mont. – GO (Tsurykau 2012): cor Pin.
381. **Opegrapha niveoatra** (Borrer) J.R. Laundon – BR (Golubkov 1987), GR (Golubkov 1987), no exact locality (Gorbach 1973b): cor Car, Pot, Qur, Sal, Sor.
382. **Opegrapha vermicellifera** (Kunze) J.R. Laundon – BR (Golubkov 1987), GR (Golubkov 1987), MI (Yatsyna 2012c), no exact locality (Gorbach 1973b): cor Acp, Car, Fre, Qur, Sal, Ulm.
383. **Opegrapha vulgata** (Ach.) Ach. – BR (Golubkov 1987): cor Acp, Aln, Car.
384. **Palicella filamentosa** (Stirt.) Rodr. Flakus & Printzen – BR (Filipowicz 1881, Suza 1928, Golubkov 1987, Kobzar 2006, Yurchenko 2011, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1911, Kreyer 1913, Wyssotzky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Tsurykau &

- Khramchankova 2007, 2009a, Tsurykau et al. 2009, Bely 2010a, 2011a, Golubkov 2011, Sobchanka et al. 2012, Yatsyna 2013a, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, 2004b, 2005, Andreeva et al. 2006, Yatsyna 2010g, Bely 2011a), MI (Bachmann & Bachmann 1920, Gorbach 1961, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, 2004a, 2004c, Yatsyna 2005, 2009d, 2012b, 2012c, 2013b, 2013c, 2014a, 2015c, Kobzar 2006, Yurchenko 2011, Bely 2011a, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2009b, 2012a, Bely 2011a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2010c, 2010f, 2011a, 2017, Yurchenko 2011, Bely 2011a), no exact locality (Belomesyatseva 2004): cor, lig Aln, Bet, Car, Coa, Fre, Jun, Pic, Pin, Pot, Pyr, Sal, Sor, Qur, Til, Ulm.
385. **Parmelia fraudans** (Nyl.) Nyl. – GR (Golubkov 1993, Golubkov et al. 2007b), MI (Golubkov 1993, Yatsyna 2010a), VI (Golubkov & Kobzar 1996, Golubkov et al. 2007b): sil.
386. **Parmelia saxatilis** (L.) Ach. – GO (Gorbach 1973b), GR (Gilibert 1781, Bachmann & Bachmann 1920), MI (Bachmann & Bachmann 1920, Yatsyna & Stefanovich 2005), MO (Savicz 1925), VI (Kreyer 1913, Bachmann & Bachmann 1920, Golubkov 1996, Yatsyna 2011c): sil. – Note: Ongoing revision of specimens previously identified as *P. saxatilis* has revealed that all corticolous records belong to other species (Tsurykau et al. in prep.).
387. **Parmelia serrana** A. Crespo, M.C. Molina & D. Hawksw. – BR (Yatsyna 2013d, Bely 2016c), GR (Yatsyna 2013d), MI (Yatsyna 2014a), MO (Yatsyna 2013d), VI (Yatsyna 2013d, Bely 2016c): cor, lig Car, Pic, Til.
388. **Parmelia sulcata** Taylor – BR (Tessendorff 1922, Krawiec 1938, Golubkov 1987, Yurchenko & Golubkov 2003, Kobzar 2006, Bely 2011a, Tsurikova 2013, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Ges 1960, Danilchuk et al. 1976, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Kravchuk 2001, Yurchenko & Golubkov 2003, Tsurykau 2004, 2005, 2010, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, 2009a, 2010a, 2015, Tsurykau et al. 2009, 2012b, 2013a, Bely 2010a, 2011a, Golubkov 2011, Sobchanka et al. 2012, Tsurikova 2013), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, 2004b, 2005, Kobzar 2006, Andreeva et al. 2006, Valko 2008, Yatsyna 2010g, 2013a, 2016c, Yurchenko 2011, Bely 2011a, Tsurykau 2017a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Golubkov 1992, Kravchuk & Kakareka 1995, Kobzar 1997, 2006, Yurchenko & Golubkov 2003, Chernyshov 2003, 2004a, Yatsyna 2005, 2009d, 2010a, 2010f, 2012b, 2012c, 2013b, 2013c, 2014c, 2014b, Mavrishev & Dyukova 2008a, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Savicz & Savicz 1924, Savicz 1925, Kravchuk & Kakareka 1998, Kobzar 2006, Yatsyna 2009b, 2012a, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Gorbach et al. 1982, Insarov & Pchelkin 1982, Golubkov 1991, 1992, Yurchenko & Golubkov 2003, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, 2013a, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, Golubkov 1992, Yatsyna 2009e): cal, cor, fol, lig, sil, ter Acd, Acn, Acp, Acr, Acs, Act, Ahi, Aln, Bet, Car, Coa, Euo, Fre, Frp, Lar, Mal, Mas, Pce, Pdi, Pdo, Pic, Pin, Pma, Poa, Pob, Poc, Pon, Pot, Ppa, Pyr, Qur, Qup, Rob, Sal, Sor, Til, Ulm, on *Lobaria pulmonaria*.
389. **Parmelina tiliacea** (Hoffm.) Hale – BR (Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2014d, Bely & Kudin 2016), GO (Savicz 1909, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Tsurykau 2005, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, 2010a, Bely 2010a, 2011a), GR (Golubkov 1992, Golubkov & Khartanovich 2004b, Golubkov et al. 2007b, Yatsyna 2016c), MI (Gorbach 1961, Golubkov & Vynaev 1981, Golubkov 1992, Kobzar 2006, Yatsyna 2006b, 2010a, 2012b, 2012c, 2013b, 2013c, 2014c, 2014b, 2015c, Yatsyna & Yurchenko 2013), MO (Kobzar 2006, Yatsyna 2009b, 2012a), VI (Kreyer 1913, Golubkov 1987, 1992, Golubkov & Kobzar 2007, Yatsyna 2010c), no exact locality (Gorbach 1962): cor, lig, met, sil Acp, Ahi, Aln, Bet, Car, Fre, Mal, Poa, Pob, Pon, Pot, Qur, Sal, Til, Ulm.

390. **Parmeliopsis ambigua** Nyl. – BR (Golubkov 1987, Golubkov et al. 2007b, Bely 2011a, Yatsyna 2013a), GO (Wysotszky et al. 1925, Ges 1960, Golubkov & Vynaev 1981, Golubkov 1992, Tsurukau & Khramchankova 2007, Tsurukau et al. 2009, Bely 2011a, Tsurikova 2013, Yatsyna 2013a, 2014d, Tsurukau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a, Bely 2011a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna 2009d, 2010a, 2010f, 2013a, 2015c, Bely 2010c, 2011a), MO (Savicz & Savicz 1924, Savicz 1925, Yatsyna 2009b, 2013a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1965d, Insarov & Pchelkin 1982, Golubkov 1991, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010f, 2011a, 2013a, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, Yatsyna 2009e): cor, lig, roo Aln, Bet, Fre, Jun, Pic, Pin, Pot, Qur, Til.
391. **Parmeliopsis hyperopta** (Ach.) Arnold – BR (Golubkov & Kobzar 2005), GO (Palamarchuk et al. 1975, Golubkov 1992, Tsurukau & Khramchankova 2007), MI (Gorbach 1955, Golubkov & Vynaev 1981, Golubkov & Yesis 1997a, Bely 2010c, 2011a, Golubkov et al. 2013), VI (Gorbach & Mashenkova 1967, Gorbach 1978, Insarov & Pchelkin 1982, Golubkov 1992, Golubkov & Kobzar 2007, Bely 2008b, 2014, Yatsyna 2010c), no exact locality (Gorbach 1957, Belomesyatseva 2004): cor, lig Bet, Jun, Pic, Pin, Pot, Qur. – Note: This species was reported by Tomin (1937) without additional information or specific citation of a source. Furthermore, the species was not located in any of his previously published contributions. Therefore, the report seems to be doubtful and it is not included in the present list.
392. **Parmotrema perlatum** (Huds.) M. Choisy – GR (Gilibert 1792), GR (Tsurukau et al. 2015), VI (Motiejūnaitė & Grochowski 2014): not indicated.
393. **Parmotrema stuppeum** (Taylor) Hale – BR (Golubkov & Kobzar 2005, Bely 2016b), GO (Golubkov 1986, 2010, Tsurukau & Khramchankova 2006, Tsurukau et al. 2009, 2015, Yatsyna 2011d, Bely 2016b), MO (Yatsyna 2012a, Tsurukau et al. 2015), no exact locality (Rassadina 1971): cor Acp, Aln, Car, Fre, Pic, Pot, Qur.
394. **Peltigera apthosa** (L.) Willd. – GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920), MI (Gorbach 1955, Golubkov & Vynaev 1981, Golubkov et al. 2013), MO (Kreyer 1913), VI (Kreyer 1913, Gapienko et al. 2014), no exact locality (Gorbach 1957, 1962): cor, ter Aln, Car, Pic, Pot, Qur.
395. **Peltigera canina** (L.) Willd. – BR (Golubkov 1987, Yatsyna 2013a), GO (Savicz 1910, Wysotszky et al. 1925, Ges 1960, Gorbach 1973a, Danilchuk et al. 1976, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Tsurukau 2005, Golubkov et al. 2007a, Tsurukau et al. 2009, Golubkov 2011, Tsurukau & Tsurikova 2017), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Kobzar 2006, Yatsyna 2010g, Yurchenko 2011, Bely 2011a, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Yatsyna & Stefanovich 2005, Yatsyna 2005, 2014a, 2013a, Kobzar 2006, Bely 2010c), MO (Kreyer 1913, Savicz & Savicz 1924, Kobzar 2006, Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov 1992, Yatsyna 2008, 2010c, Bely 2011a), no exact locality (Gorbach 1957, 1962, Kobzar 1998): cor, mus, lig, roo, ter Acp, Aln, Bet, Car, Pic, Pin, Pot, Qur, Til.
396. **Peltigera didactyla** (With.) J.R. Laundon – BR (Suza 1928, Golubkov 1987, Bely 2011a, Yatsyna 2013a), GO (Savicz 1910, Wysotszky et al. 1925, Golubkov & Vynaev 1981, Tsurukau 2005, Golubkov et al. 2007a, Tsurukau & Khramchankova 2009a, Golubkov 2011, Bely 2011a, Sobchanka et al. 2012, Tsurukau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Golubkov & Kochan 2007, Yatsyna 2010g, 2013a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz 1925, Golubkov & Vynaev 1981, Chernyshov 2003, Kobzar 2006, Yatsyna 2010a, 2013a, 2013b, Bely 2010c, 2011a, Yurchenko 2011), MO (Kreyer 1913, Yatsyna 2009b, 2013a, Yurchenko 2011), VI (Kreyer 1913, Bachmann & Bachmann 1920, Golubkov 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, Bely 2011a), no exact locality (Tomin 1937): lig, mus, roo, ter Sal.
397. **Peltigera extenuata** (Nyl. ex Vain.) Lojka – MI (Bely 2011a), VI (Bely & Golubkov 2009a): ter.

398. **Peltigera horizontalis** (Huds.) Baumg. – BR (Yatsyna 2013e), GO (Gorbach 1970), GR (Golubkov 1985, Golubkov & Kochan 2007), MI (Golubkov 1992, Yatsyna 2013e): cor, mus, ter Pic.
399. **Peltigera hymenina** (Ach.) Delise – GO (Tsuryskau 2017c), MI (Golubkov & Zavarzin 2010), VI (Kreyer 1913, Bely 2011a): cor, lig, mus, ter Pot.
400. **Peltigera lepidophora** (Nyl. ex Vain.) Bitter – BR (Golubkov & Kobzar 2005), GO (Savicz 1910, Golubkov 1992), GR (Golubkov 1992), MI (Kreyer 1913, Golubkov & Vynaev 1981, Kobzar 2006), VI (Kreyer 1913), no exact locality (Gorbach 1962): cor, mus, ter Fre.
401. **Peltigera leucophlebia** (Nyl.) Gyeln. – MI (Kobzar 2006), MO (Golubkov & Kobzar 2005, Kobzar 2006), VI (Golubkov & Kobzar 2005, Kobzar 2006): cor, mus Pot.
402. **Peltigera malacea** (Ach.) Funck – BR (Golubkov 1987, Kobzar 2006, Yatsyna 2013a), GO (Savicz 1911, Ges 1960, Golubkov 1992, Kobzar 2006, Tsuryskau & Khramchankova 2007, Tsuryskau et al. 2009), GR (Bachmann & Bachmann 1920, Kobzar 2006, Yatsyna 2010g, 2013a, Golubkov 2014a), MI (Oksner 1924, Savicz 1925, Golubkov & Vynaev 1981, Kobzar 2006, Yatsyna 2007a, 2013a, 2015c), MO (Yatsyna 2013a), VI (Kreyer 1913, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2011a, 2013f), no exact locality (Bely 2015a): lig, mus, ter.
403. **Peltigera membranacea** (Ach.) Nyl. – BR (Bely 2011a, 2011b), GR (Yatsyna 2016c), VI (Bely & Golubkov 2008, Yatsyna 2017): cor, mus Aln, Pic, Pot, Qur.
404. **Peltigera neckeri** Hepp ex Müll. Arg. – BR (Bely & Golubkov 2008), GO (Bely & Golubkov 2008), GR (Golubkov & Kochan 2007, Bely & Golubkov 2008), MI (Bely & Golubkov 2008, Yatsyna 2010a, Golubkov et al. 2013), MO (Bely 2011a), VI (Bely & Golubkov 2008, Yatsyna 2017): cor, mus, ter Pot, Qur.
405. **Peltigera neopolydactyla** (Gyeln.) Gyeln. – BR (Bely 2011b), GO (Bely & Golubkov 2009a), GR (Yatsyna 2016c), MI (Bely & Golubkov 2009a, Golubkov et al. 2013), VI (Bely & Golubkov 2009a): cor, lig, mus, ter Pot, Qur.
406. **Peltigera polydactylon** (Neck.) Hoffm. – BR (Bely 2011a, 2011b), GO (Tsuryskau & Khramchankova 2007, Golubkov 2011), GR (Golubkov & Kochan 2007, Bely 2011a), MI (Bely 2011a, 2012c, Golubkov et al. 2013), VI (Golubkov & Kobzar 2007, Bely 2011a): cor, mus, ter Qur. – Note: The distribution of *P. polydactylon* in Belarus is unclear as herbarium specimens identified as “*P. polydactyla*” mainly belong to other species of the *P. polydactylon* group (e.g. Golubkov & Zavarzin 2010); therefore, all historical reports as well as these published by Yatsyna (2008, 2010a, 2010c, 2010g, 2011a, 2014d) are treated as referring to the complex of species and thus require further study.
407. **Peltigera ponojensis** Gyeln. – BR (Golubkov & Zavarzin 2010), GR (Bely 2011a, Bely & Golubkov 2012, Yatsyna 2016c), MI (Yatsyna 2014a), VI (Bely 2011a): lig, mus, ter.
408. **Peltigera praetextata** (Flörke ex Sommerf.) Zopf – BR (Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2014d), GO (Savicz 1911, Wyssotzky et al. 1925, Golubkov 1992, Kobzar 2006, Tsuryskau & Khramchankova 2007, Tsuryskau et al. 2009, Bely 2011a, Tsuryskau 2017a, Tsuryskau & Tsurikova 2017), GR (Kobzar 2006, Golubkov & Kochan 2007, Yatsyna 2010g, 2016c, Golubkov 2014a), MI (Savicz 1925, Golubkov 1992, Kobzar 2006, Yatsyna 2010a, 2013c, 2014a, 2015c, Bely 2011a, Golubkov et al. 2013), MO (Savicz 1925, Yatsyna 2009b, 2012a), VI (Kreyer 1913, Golubkov 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a, 2017, Bely 2011a), no exact locality (Tomin 1937, Gorbach 1957): cor, lig, mus, ter Car, Fre, Pic, Pot, Qup, Qur, Til.
409. **Peltigera rufescens** (Weiss) Humb. – BR (Tessendorff 1922, Krawiec 1938, Golubkov 1987, Kobzar 2006, Yatsyna 2013a), GO (Ljubitzkaja 1914, Gorbach 1973a, Palamarchuk et al. 1975, Golubkov 1992, Tsuryskau 2005, Timoshenkova & Tsuryskau 2005, Tsuryskau et al. 2009, Tsuryskau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Kobzar 2006, Golubkov & Kochan 2007, Yatsyna 2010g, Yurchenko

- 2011, Golubkov 2014a), MI (Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Yatsyna & Stefanovich 2005, Kobzar 2006, Yatsyna 2010a, 2013a, 2014b, Yurchenko 2011), MO (Kobzar 2006, Yatsyna 2009b, 2013a), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992, Kobzar 2006, Yatsyna 2008, 2010c, 2010d, 2011a, Bely 2011a), no exact locality (Kobzar 1998, Yatsyna 2009e): cor, mus, ter Car, Pot.
410. **Pertusaria alpina** Hepp ex Ahles – BR (Golubkov 1987), GO (Gorbach 1973b, Danilchuk et al. 1976, Golubkov & Vynaev 1981), GR (Golubkov 1987), VI (Gorbach 1973b, Golubkov 1992), no exact locality (Tomin 1956, Gorbach 1956, 1957): cor Car, Coa, Fre, Pot, Til.
411. **Pertusaria coccodes** (Ach.) Nyl. – BR (Golubkov 1987), GO (Golubkov & Vynaev 1981, Golubkov 1992), GR (Golubkov 1987, 2014a), MI (Golubkov & Vynaev 1981, Yatsyna 2005, 2012b, 2012c, 2013b, Kobzar 2006, Bely 2010c, 2011a, Yurchenko 2011), MO (Kobzar 2006, Yurchenko 2011, Bely 2011a), VI (Gorbach 1973b, 1978, Golubkov 1992, Bely 2011a), no exact locality (Gorbach 1973b): cor, lig, sil Acp, Car, Poa, Pot, Qup, Qur, Til, Ulm.
412. **Pertusaria constricta** Erichsen – BR (Gorbach 1970): cor Car.
413. **Pertusaria coronata** (Ach.) Th. Fr. – BR (Golubkov 1987), GO (Wyssozky et al. 1925), GR (Golubkov 1987, Golubkov & Kukwa 2006), MO (Savicz 1925), VI (Gorbach 1981): cor Aln, Car, Fre, Til.
414. **Pertusaria flavida** (DC.) J.R. Laundon – BR (Golubkov 1987), GR (Golubkov 1987), no exact locality (Tomin 1956): cor Aln, Fre, Qur.
415. **Pertusaria leioplaca** DC. – BR (Golubkov 1987, Yatsyna 2014d), GO (Wyssozky et al. 1925, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Yurchenko 2011), GR (Golubkov 1987), MI (Golubkov & Vynaev 1981, Golubkov 1992, Bely 2011a, Yatsyna 2014a, 2015c), MO (Savicz 1925, Yatsyna 2009b, 2012a), VI (Kreyer 1913, Kobzar 2006, Yatsyna 2010c, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1973b): cor Acp, Aln, Bet, Car, Coa, Fre, Pot, Qur, Sor, Til.
416. **Pertusaria pertusa** (Weigel.) Tuck. – BR (Golubkov 1987), GO (Savicz 1911, Wyssozky et al. 1925, Golubkov 1992), GR (Yurchenko 2011), MI (Golubkov & Vynaev 1981, Golubkov 1992, Golubkov & Yesis 1997a, Yatsyna 2010a), MO (Savicz 1925), VI (Golubkov 1987, Bely 2011a), no exact locality (Gorbach 1957, 1973b, Golubkov 1992): cor Acp, Aln, Car, Coa, Fre, Pot, Qur, Sor, Til.
417. **+Phaeocalicium polyporaeum** (Nyl.) Tibell – BR (Yatsyna 2013d): on *Trichaptum biforme*.
418. **Phaeophyscia ciliata** (Hoffm.) Moberg – BR (Golubkov 1987, Bely 2011a, Bely & Kudin 2016), GO (Savicz 1911, Oksner 1925, Wyssozky et al. 1925, Ges 1960, Golubkov 1992, 2011, Tsurukau & Khramchankova 2007, 2008, Tsurukau et al. 2009, Bely 2010a, 2011a, Sobchanka et al. 2012), GR (Yatsyna 2010g, 2013a, Golubkov 2014a), MI (Gorbach 1955, 1961, 1965d, Golubkov & Vynaev 1981, Golubkov 1987, Kravchuk 2001, Yatsyna & Yurchenko 2013, Yatsyna 2014a), MO (Savicz & Savicz 1924, Yatsyna 2009b), VI (Kreyer 1913, Golubkov 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1957, 1962, Yatsyna 2009e): cor Acn, Acp, Ahi, Aln, Bet, Fre, Pic, Pin, Pob, Pon, Pot, Qur, Sal, Sor, Til.
419. **Phaeophyscia nigricans** (Flörke) Moberg – BR (Golubkov 1987, Yatsyna 2014d), GO (Kravchuk 2001, Tsurukau & Khramchankova 2007, 2008, 2010a, Golubkov 2011, Sobchanka et al. 2012, Tsurukau & Tsurikova 2017), GR (Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, 2004b, 2005, Yatsyna 2010g, 2016c), MI (Oksner 1925, Gorbach 1965c, Golubkov & Vynaev 1981, Golubkov 1992, Kravchuk 2001, Yatsyna 2007b, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Mavrishev & Dyukova 2008a, Bely 2011a, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Golubkov et al. 2013, Dobysh & Gaevskii 2016), MO (Kravchuk 2001, Yatsyna 2009b), VI (Kreyer 1913, Golubkov 1992, Kravchuk 2001, Golubkov & Kobzar 2007, Yurchenko 2011, Yatsyna 2008, 2010c, 2011a, 2017): cal, cor, lig, sil, ter Acd, Acn, Acp, Acr, Acs, Act, Ahi, Aln, Bet, Car, Fre, Jug, Mal, Pce, Pdi, Pdo, Pob, Pon, Pot, Pyr, Qur, Rob, Sal, Sor, Til, Ulm.

420. **Phaeophyscia orbicularis** (Neck.) Moberg – BR (Golubkov 1987, Bely 2011a, Yatsyna 2014d, Bely & Kudin 2016), GO (Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Kravchuk 2000, 2001, Yurchenko & Golubkov 2003, Tsurykau 2005, 2010, 2017a, Tsurykau & Khramchankova 2008, Tsurykau et al. 2009, 2013a, Bely 2010a, 2011a, Sobchanka et al. 2012, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 1992, 2014a, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005, Andreeva et al. 2006, Valko 2008, Yatsyna 2010g, 2013a, 2016c, Bely 2011a), MI (Oksner 1924, Gorbach 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Golubkov 1987, 1992, Kravchuk & Kakareka 1995, Yurchenko & Golubkov 2003, Chernyshov 2003, 2004c, Yatsyna & Stefanovich 2005, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, Mavrishev & Dyukova 2008a, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Savicz 1925, Kravchuk & Kakareka 1998, Yurchenko & Golubkov 2003, Yatsyna 2009b, Tsurykau et al. 2016a, Bely 2011a), VI (Kreyer 1913, Golubkov 1987, 1991, 1992, Yurchenko & Golubkov 2003, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2017, Yurchenko 2011, Bely 2011a), no exact locality (Yatsyna 2009e): cal, cor, lig, met, sil Abi, Acd, Acn, Acp, Acr, Acs, Act, Ahi, Aln, Bet, Car, Fre, Jug, Mal, Pce, Pdi, Pdo, Pic, Poa, Pob, Poc, Pon, Pot, Ppa, Pse, Pyr, Qur, Rob, Sal, Sor, Thu, Til, Ulm.
421. **Phaeophyscia pusilloides** (Zahlbr.) Essl. – BR (Yatsyna 2014d), MI (Yatsyna & Golubkov 2009, Bely 2010c), VI (Bely & Golubkov 2012): cor Car, Pot.
422. **Phaeophyscia sciastra** (Ach.) Moberg – BR (Golubkov 1987), GO (Golubkov 2011), GR (Golubkov 1987), MI (Golubkov 1992): cal, sil.
423. **Phlyctis agelaea** (Ach.) Flot. – GO (Wyssotzky et al. 1925), GR (Golubkov 1987, Bely 2011a), MI (Golubkov & Yesis 1997b, Chernyshov 2003, Bely 2011a), MO (Savicz 1925), VI (Golubkov 1987, 1992, Golubkov & Kobzar 2007, Bely 2011a): cor Car, Coa, Fre, Pot, Qur.
424. **Phlyctis argena** (Spreng.) Flot. – BR (Golubkov 1987, Bely 2011a, Bely & Kudin 2016), GO (Ges 1960, Golubkov 1992, 2007, 2011, Tsurykau & Khramchankova 2009a, Tsurykau et al. 2009, Bely 2010a, 2011a, Yatsyna 2014d, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov & Khartanovich 2004a, 2004b, 2005, Andreeva et al. 2006, Bely 2011a, Golubkov 2014a, Yatsyna 2016c), MI (Gorbach 1955, 1961, Golubkov & Vynaev 1981, Kobzar 1997, 2006, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2009b, Bely 2011a), VI (Gorbach & Mashenkova 1967, Gorbach 1978, Insarov & Pchelkin 1982, Golubkov 1991, Yatsyna 2010c, 2017, Yurchenko 2011, Bely 2011a), no exact locality (Gorbach 1956, 1957): cor, lig Acp, Aln, Bet, Car, Coa, Fre, Pic, Pin, Poa, Pot, Ppa, Qur, Sal, Sor, Til, Ulm.
425. **Physcia adscendens** (Fr.) H. Olivier – BR (Suza 1928, Krawiec 1938, Golubkov 1987, Bely 2011a, Yatsyna 2014d, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Ges 1960, Golubkov 1992, 2011, Kravchuk 2001, Yurchenko & Golubkov 2003, Tsurykau & Khramchankova 2007, 2008, 2010a, Tsurykau et al. 2009, 2013a, Bely 2010a, 2011a, Tsurykau 2010, Sobchanka et al. 2012, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005, Valko 2008, Yatsyna 2010g, 2013a, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz 1925, Golubkov 1992, Kravchuk 2001, Yurchenko & Golubkov 2003, Chernyshov 2003, Mavrishev & Dyukova 2008a, Yatsyna 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Savicz 1925, Kravchuk 2001, Yatsyna 2009b, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Golubkov 1987, 1991, 1992, Yurchenko & Golubkov 2003, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Bely 2011a), no exact locality (Yatsyna 2009e): cal, cor, lig, met, sil Abi, Acd, Acn, Acp, Acr, Acs, Act, Ahi, Aln, Bet, Car, Fre, Jug, Mal, Pce, Pdi, Pdo, Pic, Pin, Poa, Pob, Pon, Pot, Ppa, Pse, Pyr, Qur, Rob, Sal, Sor, Thu, Til, Ulm.
426. **Physcia aipolia** (Ehrh. ex Humb.) Fűrnr. – BR (Krawiec 1938, Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1911, Wyssotzky et al. 1925, Ges 1960,

- Golubkov & Vynaev 1981, Kravchuk 2001, Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, Tsurykau et al. 2009, Bely 2010a, 2011a, Golubkov 2011, Tsurykau & Tsurikova 2017), GR (Golubkov 1987, 2014a, Golubkov & Khartanovich 2005, Yatsyna 2010g, 2013a, 2016c), MI (Bachmann & Bachmann 1920, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Golubkov 1992, Kravchuk & Kakareka 1995, Yatsyna 2005, 2010a, 2013b, 2013c, 2014a, 2014b, Kobzar 2006, Mavrishev & Dyukova 2008a, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2009b, 2013a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Yurchenko 2011, Bely 2011a), no exact locality (Gorbach 1956, 1957, Yatsyna 2009e): cal, cor, lig Acp, Aln, Bet, Car, Fre, Mal, Pic, Pin, Poa, Pob, Poc, Pon, Pot, Pyr, Qur, Sal, Sor, Til, Ulm.
427. **Physcia alnophila** (Vain.) Loht., Moberg, Myllys & Tehler – VI (Bely & Golubkov 2009a, Yatsyna 2011a, 2017): cor Pot.
428. **Physcia caesia** (Hoffm.) Fűrnr. – BR (Golubkov 1987, Bely & Golubkov 2008, Yatsyna 2014d), GO (Savicz 1911, Palamarchuk et al. 1975, Golubkov & Vynaev 1981, Tsurykau & Khramchankova 2007, 2010a, Golubkov 2011, Sobchanka et al. 2012), GR (Golubkov 1987, 2014a, Bely & Golubkov 2008, Yatsyna 2010g, 2016c), MI (Gorbach 1965d, Golubkov & Vynaev 1981, Kravchuk & Kakareka 1995, Bely & Golubkov 2008, Yatsyna 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Savicz 1925, Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1965d, Golubkov 1987, 1992, Kravchuk 2001, Bely & Golubkov 2008, Yatsyna 2010c, 2010d, 2011a): cal, cor, lig, met, mus, sil Acp, Acs, Ahi, Bet, Car, Fre, Jug, Pin, Pdo, Pob, Pot, Qur, Rob, Sal, Sor, Til.
429. **Physcia clementei** (Turner) Maas Geest. – BR (Kobzar 2006), GO (Kobzar 2006), MI (Kobzar 2006), no exact locality (Gorbach 1957): cor Acp, Qur.
430. **Physcia dimidiata** (Arnold) Nyl. – VI (Yatsyna 2010c, 2011a): sil.
431. **Physcia dubia** (Hoffm.) Lettau – BR (Golubkov 1987, Yurchenko & Golubkov 2003, Bely 2011a, Bely & Kudin 2016), GO (Golubkov 1992, 2011, Kravchuk 2001, Tsurykau & Khramchankova 2007, 2008, 2010a, Tsurykau et al. 2009, Bely 2010a, 2011a, Tsurykau 2010, Sobchanka et al. 2012, Tsurykau & Tsurikova 2017), GR (Golubkov 1987, Yurchenko & Golubkov 2003, Golubkov & Khartanovich 2004a, 2005), MI (Golubkov 1992, Golubkov & Yesis 1997a, Kravchuk 2001, Yurchenko & Golubkov 2003, Chernyshov 2003, Yatsyna & Stefanovich 2005, Mavrishev & Dyukova 2008a, Bely 2011a, Bely & Nikolaichuk 2012, Yatsyna 2012b, 2012c, 2013c, 2014a, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Kravchuk 2001, Bely 2011a), VI (Golubkov 1992, Yatsyna 2011a): cor Acd, Acn, Acp, Acr, Acs, Act, Ahi, Aln, Bet, Car, Fre, Frp, Jug, Mal, Mas, Pce, Pce, Pdi, Pdo, Pic, Pob, Pon, Pot, Pyr, Qur, Rob, Sal, Sor, Til, Ulm.
432. **Physcia leptalea** (Ach.) DC. – GR (Bachmann & Bachmann 1920), no exact locality (Yatsyna 2009e): cor, lig, sil Aln, Bet, Pin.
433. **Physcia stellaris** (Ach.) Nyl. – BR (Suza 1928, Krawiec 1938, Bely 2011a, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Kravchuk 2000, 2001, Tsurykau 2005, 2010, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, 2010a, Tsurykau et al. 2009, 2013a, Bely 2010a, 2011a, Golubkov 2011, Sobchanka et al. 2012, Tsurykau & Tsurikova 2017), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Gorbach 1978, Golubkov 1987, 2014a, Kravchuk 2001, Yurchenko & Golubkov 2003, Golubkov & Khartanovich 2004a, 2004b, 2005, Valko 2008, Yatsyna 2010g, 2013a, 2016c, Yurchenko 2011, Bely 2011a), MI (Savicz 1909, Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Golubkov 1992, Kravchuk & Kakareka 1995, Kobzar 1997, 2006, Yurchenko & Golubkov 2003, Chernyshov 2003, Yatsyna & Stefanovich 2005, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Savicz & Savicz 1924, Savicz 1925, Kravchuk & Kakareka 1998, Yurchenko & Golubkov 2003, Kobzar 2006, Yatsyna 2009b, Bely 2011a), VI (Kreyer 1913, Bachmann &

Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, Yatsyna 2009e): cal, cor, lig, sil Abi, Acd, Acn, Acp, Acr, Acs, Act, Ahi, Aln, Bet, Car, Fra, Fre, Jug, Mal, Pce, Pdi, Pdo, Pic, Pin, Pob, Poc, Pon, Pot, Pse, Pyr, Qur, Rob, Sal, Sor, Til, Ulm.

434. **Physcia tenella** (Scop.) DC. – BR (Krawiec 1938, Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Golubkov & Vynaev 1981, Kravchuk 2000, 2001, Yurchenko & Golubkov 2003, Tsurykau 2005, 2010, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, 2010a, Tsurykau et al. 2009, 2013a, 2016a, Bely 2010a, 2011a, Golubkov 2011, Sobchanka et al. 2012, Yatsyna 2014d, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005, Yatsyna 2010g, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Golubkov 1992, Kravchuk & Kakareka 1995, Kobzar 1997, Yurchenko & Golubkov 2003, Chernyshov 2003, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, Kobzar 2006, Mavrishev & Dyukova 2008a, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Savicz & Savicz 1924, Savicz 1925, Kravchuk & Kakareka 1998, Kobzar 2006, Yatsyna 2009b, Bely 2011a), VI (Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Golubkov 1991, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Yurchenko 2011, Bely 2011a, Tsurykau et al. 2016a), no exact locality (Gorbach 1957, 1962, Yatsyna 2009e): cal, cor, fol, lig, met, sil Acd, Acn, Acp, Acs, Act, Ahi, Aln, Bet, Car, Coa, Fre, Jug, Lar, Mal, Pce, Pdi, Pdo, Pic, Pin, Poa, Pob, Poc, Pon, Pot, Ppa, Pyr, Qur, Rob, Sal, Sor, Til, Ulm.
435. **Physcia tribacia** (Ach.) Nyl. – BR (Golubkov 1987, Bely 2011a, Bely & Kudin 2016), GO (Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Kravchuk 2000, 2001, Tsurykau & Khramchankova 2009a, Bely 2010a, 2011a, Golubkov 2011), GR (Golubkov & Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005, Bely 2010c, 2011a, Yatsyna 2010g, Yurchenko 2011, Golubkov 2014a), MI (Oksner 1924, Golubkov & Vynaev 1981, Shukanov et al. 1986, Golubkov 1992, 1997, Kravchuk & Kakareka 1995, Chernyshov 2003, Yatsyna & Stefanovich 2005, Yatsyna 2007b, 2010a, 2014b, Yurchenko 2011, Bely 2011a, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Kravchuk & Kakareka 1998, Bely 2011a), VI (Kreyer 1913, Golubkov 1987, 1992, 1997, Golubkov & Kobzar 2007, Yatsyna 2010c, 2011a, Bely 2011a), no exact locality (Yatsyna 2009e): cal, cor, lig, sil Abi, Acp, Ahi, Aln, Bet, Car, Pic, Pma, Poc, Pon, Pot, Qur, Sal, Til.
436. **Physciella chloantha** (Ach.) Essl. – GR (Bachmann & Bachmann 1920): cor Pot.
437. **Physconia detera** (Nyl.) Poelt – BR (Golubkov 1987, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Ljubitzkaja 1914, Wyssotzky et al. 1925, Golubkov 1992, Bely & Golubkov 2008, Tsurykau & Khramchankova 2008, Bely 2010a, 2011a, Yurchenko 2011, Yatsyna 2012e, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987, Yatsyna 2010g, 2016c, Bely 2011a), MI (Oksner 1924, Bely & Golubkov 2008, Yatsyna 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Yurchenko 2011, Bely 2012c, Yatsyna & Yurchenko 2013), MO (Savicz 1925, Yatsyna 2009b, Bely 2011a), VI (Bely & Golubkov 2008, Yatsyna 2010c, 2010d, 2017, Bely 2011a), no exact locality (Yatsyna 2009e): cor, lig, mus Acn, Acp, Aln, Bet, Car, Coa, Euo, Fre, Poa, Pot, Qur, Sor, Til.
438. **Physconia distorta** (With.) J.R. Laundon – BR (Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2013a, 2014d, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Ges 1960, Palamarchuk et al. 1975, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Kravchuk 2001, Yurchenko & Golubkov 2003, Tsurykau 2005, 2010, 2017a, Golubkov et al. 2007a, Tsurykau & Khramchankova 2007, 2008, 2010a, Tsurykau et al. 2009, Bely 2010a, 2011a, Yurchenko 2011, Yatsyna 2014d), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1987, 1992, Kravchuk & Kakareka 1995, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Kobzar 2006, Dyukova 2008, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Downar 1861, Kreyer 1913, Savicz 1925, Kravchuk 2001, Kobzar 2006, Yatsyna 2009b, 2012a, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920,

Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov 1987, 1991, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, 2017, Yurchenko 2011, Bely 2011a), no exact locality (Gorbach 1956, 1957, Yatsyna 2009e): cor, sil Acn, Acp, Acs, Ahi, Aln, Bet, Car, Euo, Fre, Jug, Mal, Poa, Pob, Pon, Pot, Pyr, Qur, Rob, Sal, Sor, Til, Ulm.

439. **Physconia enteroxantha** (Nyl.) Poelt – BR (Golubkov 1987, Bely 2011a, Yatsyna 2014d, Bely & Kudin 2016), GO (Golubkov 1992, 2007, 2011, Tsurykau 2005, 2010, Bely & Golubkov 2008, Tsurykau & Khramchankova 2008, 2010a, Tsurykau et al. 2009, Bely 2010a, 2011a, Tsurykau & Tsurikova 2017), GR (Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, 2004b, 2005, Yurchenko 2011, Yatsyna 2016c), MI (Golubkov 1987, Golubkov & Yesis 1997a, Yurchenko 2011, Bely 2011a, Bely & Nikolaichuk 2012, Yatsyna 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Golubkov et al. 2013), MO (Bely 2011a), VI (Bely & Golubkov 2008, Yatsyna 2010c, 2010d, 2011a, 2017), no exact locality (Yatsyna 2009e): cor Acn, Acp, Acs, Ahi, Aln, Bet, Car, Fre, Jug, Pce, Poa, Pob, Pon, Pot, Pyr, Qur, Rob, Sal, Sor, Til, Ulm.
440. **Physconia grisea** (Lam.) Poelt – BR (Krawiec 1938, Kobzar 2006, Bely 2011a), GO (Ges 1960, Golubkov & Vynaev 1981, Golubkov 1992, 2007, 2011, Kravchuk 2001, Kobzar 2006, Tsurykau & Khramchankova 2007, 2008, 2010a, Tsurykau & Tsurikova 2017), GR (Golubkov 1987, 2014a, Golubkov & Khartanovich 2004b, 2005, Kobzar 2006, Yatsyna 2016c), MI (Gorbach 1955, 1961, Golubkov & Vynaev 1981, Kravchuk & Kakareka 1995, Kobzar 2006, Mavrishev & Dyukova 2008a, Yatsyna 2012b, 2013b, 2013c, 2014a, 2014b, Golubkov et al. 2013, Dobysh & Gaevskii 2016), MO (Kravchuk & Kakareka 1998, Kobzar 2006), VI (Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov 1991), no exact locality (Gorbach 1956, 1957, 1962): cor, lig Acn, Acp, Acs, Ahi, Aln, Bet, Car, Fre, Pic, Poa, Pon, Pot, Ppa, Pyr, Qur, Sal, Sor, Til, Ulm.
441. **Physconia muscigena** (Ach.) Poelt – no exact locality (Yatsyna & Merzhvinsky 2012): not indicated.
442. **Physconia perisidiosa** (Erichsen) Moberg – BR (Yatsyna 2014d), GO (Tsurykau & Khramchankova 2007, Yurchenko 2011, Golubkov 2011, Bely 2011a), GR (Golubkov & Khartanovich 2005, Yatsyna 2010g, 2016c, Golubkov 2014a), MI (Golubkov & Yesis 1997a, Yatsyna & Golubkov 2009, Yatsyna 2010a, 2012b, 2013b, 2013c, 2014a, 2014b, 2015c, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Yatsyna 2009b), VI (Bely & Golubkov 2008, Yatsyna 2010c, Gapienko et al. 2014), no exact locality (Golubkov 1987): cor Acp, Bet, Fre, Pot, Qur, Til.
443. **Piccolia ochrophora** (Nyl.) Hafellner – GO (Golubkov 2011): cor Sal.
444. **Placidium squamulosum** (Ach.) Breuss – GR (Golubkov 2013b, Yatsyna 2016c), VI (Golubkov 1996): cal, ter.
445. **Placynthiella dasaea** (Stirt.) Tønsberg – GO (Bely 2011a), VI (Bely 2011a), no exact locality (Makarova 2003): lig.
446. **Placynthiella hyporhoda** (Th. Fr.) Coppins & P. James – GO (Golubkov 2011, Yatsyna 2013a), MI (Yatsyna 2013a), MO (Yatsyna 2013a), VI (Kreyer 1913, Yatsyna 2010c, 2011a): ter.
447. **Placynthiella icmalea** (Ach.) Coppins & P. James – BR (Bely 2012a), GO (Bely 2011a, Tsurykau & Tsurikova 2017), GR (Yatsyna 2010g), MI (Bely 2011a, Yatsyna 2013a, 2014a), MO (Yatsyna 2013a), VI (Yatsyna 2010c, 2011a, 2017), no exact locality (Makarova 2003): lig, roo, ter Pic, Pin.
448. **Placynthiella oligotropha** (J.R. Laundon) Coppins & P. James – GO (Golubkov 2011, Bely 2011a), MI (Bely 2011a, Yatsyna 2013a), MO (Yatsyna 2009b), VI (Golubkov 1992, Yatsyna 2010c): lig, roo, ter Pic.
449. **Placynthiella uliginosa** (Schrader) Coppins & P. James – BR (Filipowicz 1881, Golubkov 1987, Yurchenko 2011, Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Bely 2010a, Golubkov 2011, Yatsyna 2013a), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a), MI (Savicz & Savicz 1924, Savicz 1925, Golubkov & Vynaev 1981,

Golubkov 1992, Golubkov & Yesis 1997b, Chernyshov 2003, Yatsyna 2009d, 2010a, 2013a, 2017, Bely 2011a), MO (Yatsyna 2013a), VI (Yatsyna 2010c, 2013a, Bely 2011a): lig, mus, ter Pic, Pin.

450. **Placynthium nigrum** (Huds.) Gray – GR (Golubkov 2013b, Yatsyna 2013d), MI (Golubkov 2013b), VI (Yatsyna 2011e): cal.
451. **Platismatia glauca** (L.) W. L. Culb. & C. F. Culb. – BR (Krawiec 1938, Golubkov 1987, Bely 2011a, Yatsyna 2013a, Tsurikova 2013), GO (Savicz 1911, Ges 1960, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Golubkov 1992, Tsurykau 2005, Tsurykau et al. 2009, Bely 2011a, Tsurikova 2013, Yatsyna 2014d), GR (Błoński 1889, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2010g, 2013a, Bely 2011a), MI (Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov 1992, Kobzar 1997, Yatsyna 2005, 2010a, 2010f, 2013a, 2013c, 2014a, Bely 2010c, 2011a, Yurchenko 2011), MO (Yatsyna 2009b, 2013a, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1978, Insarov & Pchelkin 1982, Golubkov 1991, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, 2013a, 2017, Bely 2011a), no exact locality (Gorbach 1957, Yatsyna 2009e): cor, lig Acp, Aln, Bet, Car, Jun, Mal, Pce, Pic, Pin, Pot, Pyr, Qur, Sal, Ulm.
452. **Pleurosticta acetabulum** (Neck.) Elix & Lumbsch – BR (Golubkov et al. 2007b), GO (Kreyer 1913, Ljubitskaja 1914, Golubkov & Vynaev 1981, Golubkov 1992, Kravchuk 2001, Tsurykau 2005, Tsurykau & Khramchankova 2008, 2010a, Tsurykau et al. 2009, Bely 2011a, Tsurikova 2013), GR (Golubkov 1987, 1992, 2014a, Golubkov & Khartanovich 2004a, Golubkov et al. 2007b, Yatsyna 2010g, 2016c), MI (Bachmann & Bachmann 1920, Gorbach 1965d, Golubkov & Vynaev 1981, Golubkov 1992, Yatsyna 2005, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Kobzar 2006, Yatsyna & Yurchenko 2013), MO (Yatsyna 2009b), VI (Kreyer 1913, Golubkov 1987, 1992, Kravchuk 2001, Yatsyna 2010c, 2011a, Yurchenko 2011): cor Acn, Acp, Bet, Fre, Poa, Pob, Pon, Pot, Qur, Til.
453. **Polycauliona candelaria** (L.) Frödén, Arup & Söchting – BR (Krawiec 1938, Yatsyna 2010e, Yatsyna & Kondratyuk 2013), GO (Wyssotzky et al. 1925, Golubkov 1992, Kravchuk 2001, Tsurykau & Khramchankova 2008, 2010a, Tsurykau & Tsurikova 2017), GR (Gilibert 1781, 1792, Yatsyna 2010e, 2010g, 2016c, Yatsyna & Kondratyuk 2013, Golubkov 2014a), MI (Golubkov & Vynaev 1981, Golubkov 1992, Kravchuk & Kakareka 1995, Kobzar 2006, Yatsyna 2010a, 2010e, 2012b, 2013b, 2013c, 2014a, 2014b, Bely 2011a, Yatsyna & Kondratyuk 2013, Yatsyna & Yurchenko 2013), MO (Yatsyna 2010e, Yatsyna & Kondratyuk 2013), VI (Golubkov 1992, Kravchuk 2001, Golubkov & Kobzar 2007, Yatsyna 2010c, 2011a, Yatsyna & Kondratyuk 2013), no exact locality (Gorbach 1965d): cor Acp, Act, Ahi, Aln, Bet, Fre, Pon, Qur, Sal, Til, Ulm.
454. **Polycauliona phlogina** (Ach.) Arup, Frödén & Söchting – no exact locality (Kondratyuk et al. 2004): not indicated.
455. **Polycauliona polycarpa** (Hoffm.) Frödén, Arup & Söchting – BR (Krawiec 1938, Golubkov 1987, Kobzar 2006, Yatsyna 2010e, 2014d, Bely 2011a, Bely & Kudin 2016), GO (Ljubitzkaja 1914, Wyssotzky et al. 1925, Ges 1960, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Kravchuk 2000, 2001, Yurchenko & Golubkov 2003, Tsurykau 2005, 2010, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, 2010a, Bely 2010a, 2011a, Yatsyna 2010e, Yurchenko 2011, Golubkov 2011, Sobchanka et al. 2012, Tsurykau et al. 2013a, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005, Kobzar 2006, Yatsyna 2010e, 2010g, 2016c, Yurchenko 2011, Bely 2011a, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, 1965b, Golubkov & Vynaev 1981, Shukanov et al. 1986, Kravchuk & Kakareka 1995, Vyazovskaya & Golubkov 1997, Yurchenko & Golubkov 2003, Chernyshov 2003, Yatsyna 2005, 2010a, 2010e, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Mavrishev & Dyukova 2008a, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Dobysh & Gaevskii 2016), MO (Savicz 1925, Kravchuk & Kakareka 1998, Yatsyna 2009b, 2010e, Bely 2011a), VI (Kreyer 1913, Gorbach 1965d, Golubkov 1987, 1991, 1992, Yurchenko & Golubkov 2003, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010e, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, Golubkov 2000): cor, lig, sil Abi, Acd, Acn, Acp, Acr, Acs, Act, Ahi, Aln, Bet, Car, Fre, Jug, Lar, Mal, Pce, Pdi, Pdo, Pic, Pma, Poa, Pob, Poc, Pon, Pot, Ppa, Pse, Pyr, Qur, Rib, Rob, Sal, Sor, Til, Ulm.

456. **Polycauliona ucrainica** (S.Y. Kondr.) Frödén, Arup & Söchting – BR (Yatsyna & Kondratyuk 2013), GO (Golubkov 2011, 2013a), GR (Golubkov 2013a, Yatsyna & Kondratyuk 2013, Yatsyna 2016c), MI (Yatsyna 2010a, 2010e, 2012b, 2013c, 2014b, 2015c, Yatsyna & Kondratyuk 2013, Golubkov 2013a), MO (Yatsyna & Kondratyuk 2013), VI (Yatsyna 2010e, 2013f, Golubkov 2013a, Yatsyna & Kondratyuk 2013), no exact locality (Kondratyuk 2004): cor, lig Acp, Aln, Bet, Lar, Pic, Pis, Pon, Pot, Qur, Sor, Til. – Note: The report by Tsurykau & Khramchankova (2008) is erroneous and belongs to *P. candelaria* (see, Tsurykau 2013a).
457. **Polysporina simplex** (Davies) Vězda – BR (Golubkov 1987), GR (Yurchenko 2011), VI (Golubkov 1996): cal.
458. **Porpidia cinereoatra** (Ach.) Hertel & Knoph – GO (Kobzar 2006), VI (Kreyer 1913): sil.
459. **Porpidia crustulata** (Ach.) Hertel & Knoph – BR (Krawiec 1938, Yurchenko 2011), GO (Savicz 1911, Golubkov 1992), GR (Bachmann & Bachmann 1920, Golubkov 2014a), MI (Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Chernyshov 2004c, Yurchenko 2011, Yatsyna 2013a), VI (Kreyer 1913, Golubkov 1992, Bely & Golubkov 2012): sil.
460. **Porpidia macrocarpa** (DC.) Hertel & A. J. Schwab – GR (Bachmann & Bachmann 1920), MI (Golubkov & Yesis 1997b, Yatsyna & Stefanovich 2005): sil.
461. **Porpidia soledizodes** (Lamy) J.R. Laundon – BR (Golubkov 1987): sil.
462. **Protoblastenia rupestris** (Scop.) J. Steiner – GR (Golubkov 2008, 2013b, Yatsyna 2016c), MI (Golubkov 2013b): cal.
463. **Protoparmelia badia** (Hoffm.) Hafellner – GR (Yatsyna 2015d): sil.
464. **Protoparmelia hypotremella** van Herk, Spier & V. Wirth – GO (Tsurykau et al. 2016a): cor Pin.
465. **Protoparmeliopsis muralis** (Schreb.) M. Choisy – BR (Golubkov 1987), GO (Savicz 1911, Golubkov & Vynaev 1981, Tsurykau & Khramchankova 2009a, Golubkov 2011), GR (Bachmann & Bachmann 1920, Golubkov 1987, 1997, 2014a, Yatsyna 2010g, 2016c), MI (Golubkov & Vynaev 1981, Yatsyna 2010a, 2012b, 2013c, 2013b, 2014a, 2014b, 2015c, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013, Golubkov et al. 2013), MO (Savicz 1925, Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Golubkov 1991, 1992, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a, Yurchenko 2011): cal, lig, sil.
466. **Pseudevernia furfuracea** (L.) Zopf – BR (Tessendorff 1922, Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Savicz 1909, Wyssotzky et al. 1925, Ges 1960, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Kravchuk 2000, Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, Tsurykau et al. 2009, Bely 2010a, 2011a, Tsurikova 2013, Yatsyna 2014d, Tsurykau & Tsurikova 2017), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Kravchuk 2001, Kobzar 2006, Yatsyna 2010g, 2013a, Bely 2011a), MI (Bachmann & Bachmann 1920, Savicz & Savicz 1924, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1992, Kobzar 1997, 2006, Kravchuk 2001, Chernyshov 2003, Yatsyna 2005, 2009d, 2010a, 2010f, 2012b, 2013a, 2013b, 2013c, 2014a, 2014b, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013), MO (Kreyer 1913, Savicz 1925, Kravchuk & Kakareka 1998, Yatsyna 2004, 2009b, 2013a, Kobzar 2006), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Gorbach & Getko 1978, Insarov & Pchelkin 1982, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010f, 2011a, 2013a, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957, Yatsyna 2009e): cor, lig, mus, sil Acp, Aln, Bet, Car, Fre, Pce, Pic, Pin, Pis, Poa, Pon, Pot, Pyr, Qur, Sal, Sor, Til, Ulm.

467. **Pseudosagedia aenea** (Wallr.) Hafellner & Kalb – BR (Makarevich 1960, Bely 2011a, Yatsyna 2014d), MI (Bely 2011a, Yatsyna 2013c, 2014a, 2015c), VI (Gapienko et al. 2014, Yatsyna 2017): cor Acp, Aln, Car, Coa, Pic, Pot.
468. **Pseudoschismatomma rufescens** (Pers.) Ertz & Tehler – BR (Gorbach 1973b, Golubkov 1987, Yatsyna 2014d, Bely & Kudin 2016), GO (Golubkov & Vynaev 1981, Golubkov 1992, Tsurykau & Khramchankova 2009b, Bely 2010a), GR (Bachmann & Bachmann 1920, Yatsyna 2016c), MI (Bachmann & Bachmann 1920, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov 1992, Yatsyna 2012b, 2013b, 2013c, 2014a, 2014b, 2015c), MO (Kobzar 2006), VI (Gorbach & Mashenkova 1967, Golubkov 1992, Yatsyna 2010d, 2011e, Bely 2011a), no exact locality (Tomin 1939, Gorbach 1956, 1957, Golubkov 1992): cor Acp, Aln, Bet, Car, Coa, Fre, Pin, Pot, Qur, Til, Ulm.
469. **Psilolechia clavulifera** (Nyl.) Coppins – MI (Yatsyna & Motiejūnaite 2015), VI (Yatsyna 2017): roo Pic.
470. **Psilolechia lucida** (Ach.) M. Choisy – GO (Bely 2011a, Yatsyna 2012e, Tsurykau & Tsurikova 2017), MI (Kobzar 2006, Bely 2011a, Yatsyna 2011c, 2013b), MO (Yatsyna 2011c), VI (Bely 2011a, Yatsyna 2011e, 2017): cal, cor, lig, roo Car, Pic, Pin.
471. **Psoroglaena dictyospora** (Orange) H. Harada – MI (Yatsyna 2014a): cor Fre.
472. **Punctelia subrudecta** (Nyl.) Krog – BR (Golubkov 1985), GO (Golubkov 1986, 1992, 2010, Bely 2010a, Yatsyna 2011d, Tsurykau et al. 2015), VI (Yatsyna 2011d): cor Aln, Fre, Qur, Sal.
473. **Punctelia jeckeri** (Roum.) Kalb – GO (Tsurykau et al. 2015): cor Aln, Qur.
474. **Pycnora sorophora** (Vain.) Hafellner – GO (Tsurykau et al. 2012, Yatsyna 2012d, Tsurykau & Khramchankova 2015), MI (Yatsyna 2012d, 2015c), MO (Yatsyna 2012d), VI (Yatsyna 2012d): cor Pin.
475. **Pycnothelia papillaria** Dufour – GO (Golubkov 1992, 2011), GR (Golubkov 2014a), MI (Bachmann & Bachmann 1920, Tsetterman 1948, Golubkov 1992, Yurchenko 2011), VI (Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007), no exact locality (Gorbach 1965d, Golubkov 1992, Bely 2015a): ter.
476. **Pyrenula coryli** (Nyl.) A. Massal. – VI (Kreyer 1913, Kobzar 1983), no exact locality (Gorbach 1956, 1957, 1962): cor Car, Coa, Sor, Ulm.
477. **Pyrenula laevigata** (Pers.) Arnold – BR (Golubkov 1987), VI (Kreyer 1913, Insarov & Pchelkin 1982, Kobzar 2006, Bely 2011a), no exact locality (Gorbach 1956, 1957): cor Acp, Bet, Car, Fre, Pin, Pot.
478. **Pyrenula nitida** (Weigel) Ach. – BR (Golubkov 1987, Yatsyna 2014d), GO (Wyssotzky et al. 1925, Golubkov & Vynaev 1981), GR (Golubkov 1992), MI (Golubkov & Vynaev 1981, Yatsyna 2012b, 2013b, 2014a, 2015c), MO (Yatsyna 2012a), VI (Yatsyna 2010c, 2011a), no exact locality (Gorbach 1956, 1957): cor Car, Coa, Fre, Poa, Ulm.
479. **Pyrenula nitidella** (Flörke ex Schaer.) Müll. Arg. – BR (Golubkov 1987), GO (Wyssotzky et al. 1925, Golubkov 1992, Yurchenko 2011), GR (Golubkov 1987), MI (Golubkov 1992, Golubkov & Yesis 1997a), MO (Bely & Golubkov 2009a), VI (Kobzar 2006, Bely & Golubkov 2009a), no exact locality (Gorbach 1956, 1957, Golubkov 1992): cor Acp, Car, Coa, Fre.
480. **Pyrrhospora quernea** (Dicks.) Körb. – VI (Insarov & Pchelkin 1982), MI (Yatsyna 2013b, 2013c, Yatsyna & Yurchenko 2013): cor Lar, Pin, Til.
481. **Ramalina baltica** Lettau – BR (Gorbach 1973b), GO (Wyssotzky et al. 1925, Golubkov & Vynaev 1981, Golubkov 1992, 2011, Tsurykau & Khramchankova 2007, Tsurykau et al. 2009, Bely 2011a), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Yatsyna 2016b, 2016c), MI (Bachmann & Bachmann 1920, Oksner 1924, Golubkov & Vynaev 1981, Kobzar 2006, Yatsyna 2012c, 2013b, 2013c,

- 2016b, Golubkov et al. 2013), MO (Savicz & Savicz 1924, Savicz 1925), VI (Gorbach & Mashenkova 1967, Golubkov 1987, Kobzar 2006, Yurchenko 2011, Yatsyna 2011e, 2016b, Bely 2015b), no exact locality (Golubkov 1992): cor, lig Acp, Aln, Car, Fre, Lar, Mal, Pic, Pot, Pyr, Qur, Sal, Sor, Til.
482. **Ramalina calicaris** (L.) Fr. – GO (Wyssotzky et al. 1925, Yatsyna 2016b), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Yatsyna 2016b), MI (Oksner 1924, Gorbach 1955, Bely & Golubkov 2012, Yatsyna 2013a, 2016b, Golubkov et al. 2013), VI (Bely 2011a, Bely & Golubkov 2012, Gapienko et al. 2014), no exact locality (Gorbach 1956, 1957): cor Acp, Aln, Bet, Car, Fre, Pic, Pin, Pot, Qur, Sal, Sor, Til.
483. **Ramalina dilacerata** (Hoffm.) Hoffm. – GO (Ljubitskaja 1914), VI (Kreyer 1913, Bely & Golubkov 2009a, Bely 2011a): cor Pic, Qur, Sor.
484. **Ramalina elegans** (Bagl. & Carestia) Stizenb. – MI (Golubkov & Kobzar 2005, Yatsyna 2010a, Bely & Golubkov 2012), VI (Bely 2011a): cor Pot, Sal.
485. **Ramalina farinacea** (L.) Ach. – BR (Gorbach 1963, Golubkov 1987, Kobzar 2006, Yurchenko 2011, Bely 2011a, Yatsyna 2013a, 2014d, 2016b, Bely & Kudin 2016), GO (Savicz 1909, Wyssotzky et al. 1925, Ges 1960, Gorbach 1965d, Palamarchuk et al. 1975, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Kravchuk 2000, Tsurykau 2005, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, 2010a, Tsurykau et al. 2009, Bely 2010a, 2011a, Golubkov 2011, Yatsyna 2014d, 2016b), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, 2004b, Kobzar 2006, Andreeva et al. 2006, Yatsyna 2010g, 2013a, 2016b, 2016c, Yurchenko 2011, Bely 2011a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz 1925, Gorbach 1955, 1961, 1963, Golubkov & Vynaev 1981, Shukanov et al. 1986, Kravchuk & Kakareka 1995, Kobzar 1997, 2006, Yatsyna 2005, 2010a, 2012b, 2012c, 2013a, 2013b, 2013c, 2014a, 2014b, 2015c, 2016b, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Downar 1861, Kreyer 1913, Savicz & Savicz 1924, Savicz 1925, Gorbach 1963, Kravchuk & Kakareka 1998, Yatsyna 2009b, 2012a, 2016b, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1963, 1973b, 1978, Gorbach & Mashenkova 1967, Golubkov 1991, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2011a, 2016b, 2017, Bely & Golubkov 2008, Bely 2011a), no exact locality (Gorbach 1956, 1957): cor Acp, Aln, Bet, Car, Coa, Fre, Mal, Pic, Pin, Poa, Poc, Pon, Pot, Pyr, Qup, Qur, Sal, Sor, Til, Ulm, on Lobaria pulmonaria.
486. **Ramalina fastigiata** (Pers.) Ach. – BR (Golubkov 1987, Yatsyna 2013a), GO (Golubkov 2011), GR (Bachmann & Bachmann 1920, Golubkov 1992, 2014a, Yurchenko 2011, Yatsyna 2016b, 2016c), MI (Bachmann & Bachmann 1920, Golubkov & Vynaev 1981, Golubkov & Yesis 1997b, Yatsyna 2005, 2010a, 2012b, 2013b, 2013c, 2014a, 2014b, 2015c, Kobzar 2006, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Downar 1861, Kreyer 1913, Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Golubkov 1987, 1992, Golubkov & Kobzar 2007, Bely 2011a, Gapienko et al. 2014), no exact locality (Gorbach 1973b, Golubkov 1992): cor, lig Acp, Fre, Pic, Poa, Pon, Pot, Qur, Sal, Til, Ulm.
487. **Ramalina fraxinea** (L.) Ach. – BR (Krawiec 1938, Golubkov 1987, Kobzar 2006, Yatsyna 2013a, 2014d, 2016b, Bely & Kudin 2016), GO (Savicz 1909, Wyssotzky et al. 1925, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Tsurykau 2005, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, Tsurykau et al. 2009, Bely 2010a, Golubkov 2011, Yatsyna 2016b), GR (Gilibert 1781, Bachmann & Bachmann 1920, Gorbach 1978, Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, 2004b, 2005, Kobzar 2006, Yatsyna 2010g, 2016b, 2016c, Yurchenko 2011), MI (Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Kobzar 1997, 2006, Chernyshov 2003, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, 2016c, Yurchenko 2011, Bely 2011a, Yatsyna & Yurchenko 2013), MO (Downar 1861, Kreyer 1913, Savicz & Savicz 1924, Savicz 1925, Yatsyna 2009b, 2012a, 2016b, Bely 2011a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1963, Gorbach & Mashenkova 1967, Golubkov 1991, Yatsyna 2010c, 2010d, 2011a, 2016b, 2017, Bely 2011a), no exact locality (Gorbach 1956, 1957): cor Acp, Aln, Bet, Car, Fre, Mal, Pic, Poa, Poc, Pon, Pot, Pyr, Qur, Rob, Sal, Sor, Til, Ulm.
488. **Ramalina pollinaria** (Westr.) Ach. – BR (Golubkov 1987, Yurchenko 2011, Bely 2011a, Yatsyna 2014d, 2016b, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, 1914, Wyssotzky et al. 1925, Ges 1960,

Danilchuk et al. 1976, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Tsurykau 2005, 2017a, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, Tsurykau et al. 2009, Bely 2010a, 2011a, Golubkov 2011, Yatsyna 2014d), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Golubkov & Khartanovich 2004a, Kobzar 2006, Andreeva et al. 2006, Yatsyna 2016b, 2016c), MI (Oksner 1924, Savicz 1925, Gorbach 1955, 1961, 1963, Golubkov & Vynaev 1981, Yatsyna 2005, 2010a, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, 2016b, Kobzar 2006, Yatsyna & Yurchenko 2013), MO (Savicz & Savicz 1924, Savicz 1925, Gorbach 1963, Kobzar 2006, Yatsyna 2009b, 2016b), VI (Kreyer 1913, 1914, Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov 1991, Golubkov & Kobzar 2007, Yatsyna 2010c, 2010d, 2016b, 2017), no exact locality (Gorbach 1956): cal, cor, lig Acp, Acs, Aln, Bet, Car, Fre, Pic, Pon, Pot, Pyr, Qup, Qur, Sal, Sor, Til.

489. **Ramalina sinensis** Jatta – BR (Gorbach 1963, Yatsyna 2016b), no exact locality (Gorbach 1962): cor Acp, Car, Qur.
490. **Ramalina subfarinacea** (Nyl. ex Cromb.) Nyl. – VI (Yatsyna 2013f): sil. – Note: Reports by Bely (2010a, 2011a) are erroneous and belong to *R. farinacea* (Bely, pers. comm.). Also the report on *Picea abies* bark by Oksner (1925) seems to be doubtful given that the species is typically saxicolous.
491. **Ramalina thrausta** (Ach.) Nyl. – BR (Krawiec 1938, Gorbach 1973b, Golubkov 1987), GO (Golubkov & Kobzar 2005), MI (Savicz 1925, Golubkov & Vynaev 1981, Yatsyna 2016b), MO (Savicz & Savicz 1924, Savicz 1925), VI (Kreyer 1913, Golubkov 1992), no exact locality (Gorbach 1965d): cor Coa, Pic, Qur.
492. **Ramboldia elabens** (Fr.) Kantvilas & Elix – BR (Golubkov 1987): lig.
493. **Reichlingia leopoldii** Diederich & Scheid. – MI (Yatsyna 2014a): cor Fre, Qur.
494. **Rhizocarpon badioatrum** (Flörke ex Spreng.) Th. Fr. – VI (Kreyer 1913, Matwiejuk & Golubkov 2012): sil.
495. **Rhizocarpon distinctum** Th. Fr. – GR (Bachmann & Bachmann 1920, Golubkov 1987, Golubkov & Matwiejuk 2009, Yatsyna 2016c), MI (Golubkov 1997), VI (Bachmann & Bachmann 1920, Gorbach 1973b, Yatsyna 2010c), no exact locality (Golubkov 1992): sil. – Note: The report by Kreyer (1913) seems to be doubtful based on the negative I reaction of the medulla.
496. **Rhizocarpon geographicum** (L.) DC. – GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Bely & Golubkov 2008, Golubkov & Matwiejuk 2009), MI (Golubkov 2002, Bely & Golubkov 2008, Matwiejuk & Golubkov 2012, Yatsyna & Yurchenko 2013), MO (Yatsyna 2009b), VI (Golubkov 1992, Bely & Golubkov 2008, Yatsyna 2010c): sil.
497. **Rhizocarpon grande** (Flörke ex Flot.) Arnold – GR (Bachmann & Bachmann 1920, Golubkov & Matwiejuk 2009), MI (Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1997), MO (Savicz 1925, Matwiejuk & Golubkov 2012), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1973b, Matwiejuk & Golubkov 2012), no exact locality (Golubkov 1992): sil.
498. **Rhizocarpon hochstetteri** (Körb.) Vain. – GR (Golubkov & Matwiejuk 2009): sil.
499. **Rhizocarpon lavatum** (Fr.) Hazsl. – GO (Ljubitzkaja 1914), GR (Golubkov & Matwiejuk 2009), MI (Golubkov & Matwiejuk 2010): sil.
500. **Rhizocarpon lecanorinum** Anders – GR (Yatsyna & Motiejūnaite 2015): sil.
501. **Rhizocarpon obscuratum** (Ach.) A. Massal. – GR (Bely & Golubkov 2008), MI (Golubkov 1997, Yurchenko 2011), VI (Bely & Golubkov 2008): sil.
502. **Rhizocarpon petraeum** (Wulfen) A. Massal. – BR (Golubkov 1987), GR (Bachmann & Bachmann 1920, Golubkov & Matwiejuk 2009), VI (Golubkov & Matwiejuk 2010): sil.

503. **Rhizocarpon polycarpum** (Hepp) Th. Fr. – GR (Golubkov & Matwiejuk 2009), MI (Matwiejuk & Golubkov 2012), VI (Matwiejuk & Golubkov 2012): sil.
504. **Rhizocarpon reductum** Th. Fr. – GR (Bachmann & Bachmann 1920, Golubkov & Matwiejuk 2009), MI (Golubkov & Yesis 1997a, Golubkov 1997, Chernyshov 2003), VI (Kreyer 1913, Tomin 1956): sil.
505. **Rhizocarpon subpostumum** (Nyl.) Arnold – GR (Bachmann & Bachmann 1920): sil.
506. **Rhizocarpon timdalii** Ihlen & Fryday – VI (Golubkov & Matwiejuk 2010) sil.
507. **#Rhizocarpon viridiatrum** (Wulfen) Körb. – GR (Yatsyna 2015d): sil.
508. **Rinodina bischoffii** (Hepp) A. Massal. – GR (Yatsyna & Motiejūnaite 2015): cal.
509. **Rinodina conradii** Körb. – MI (Tomin 1956): lig.
510. **Rinodina exigua** (Ach.) Gray – GO (Savicz 1909, Golubkov 1992), GR (Bachmann & Bachmann 1920, Golubkov 1987, Golubkov & Khartanovich 2004a, 2004b, 2005), MI (Bachmann & Bachmann 1920, Golubkov & Vynaev 1981, Bely 2011a, Yatsyna 2012b, Yatsyna & Yurchenko 2013), VI (Kravchuk 2001, Yatsyna 2010c): cor, lig Aln, Fre, Lar, Pon, Pot, Qur, Til.
511. **Rinodina gennarii** Bagl. – MI (Golubkov & Yesis 1997b): not indicated.
512. **Rinodina oxydata** (A. Massal.) A. Massal. – GR (Bachmann & Bachmann 1920, Yatsyna 2016c): sil.
513. **Rinodina polyspora** Th. Fr. – GO (Savicz 1909, Golubkov 1992), GR (Bachmann & Bachmann 1920), MO (Kreyer 1913), no exact locality (Gorbach 1962): cor Aln, Bet, Pyr, Pot.
514. **Rinodina pyrina** (Ach.) Arnold – BR (Kobzar 2006, Bely 2011a, Bely & Kudin 2016), GO (Bely 2010a, Yatsyna 2013a, Tsurykau & Tsurikova 2017), GR (Bachmann & Bachmann 1920, Golubkov 1987), MI (Gorbach 1961, Golubkov & Yesis 1997b, Chernyshov 2003, Kobzar 2006, Bely 2011a, Bely & Nikolaichuk 2012, Yatsyna 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013), MO (Yatsyna 2013a): cor, lig Ahi, Bet, Fre, Pic, Pon, Pot, Sor, Qur, Sal, Til.
515. **Rinodina sophodes** (Ach.) A. Massal. – BR (Kobzar 2006), GO (Savicz 1909), GR (Bachmann & Bachmann 1920), MI (Golubkov & Yesis 1997b), VI (Golubkov 1992), no exact locality (Gorbach 1956, 1957): cor, lig Bet, Pot, Qur, Sor.
516. **Rinodina teichophila** (Nyl.) Arnold – GR (Yatsyna 2015d), VI (Kreyer 1913): sil.
517. **Ropalospora viridis** (Tønsberg) Tønsberg – GO (Tsurykau et al. 2016a): cor Pin.
518. **Rusavskia elegans** (Link) S.Y. Kondr. & Kärnefelt – BR (Yatsyna 2010e, 2014d, Yurchenko 2011, Yatsyna & Kondratyuk 2013), GO (Tsurykau 2005, Tsurykau & Khramchankova 2009a, Yatsyna 2010e, Golubkov 2011, Sobchanka et al. 2012, Yatsyna & Kondratyuk 2013), GR (Golubkov 1987, 1993, Yatsyna 2010e, 2010g, 2016c, Yurchenko 2011, Yatsyna & Kondratyuk 2013), MI (Golubkov 1987, 1992, 1993, Yatsyna & Stefanovich 2005, Yatsyna 2010a, 2010e, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013, Yatsyna & Kondratyuk 2013), MO (Yatsyna 2009b, 2010e, Yatsyna & Kondratyuk 2013), VI (Golubkov 1996, Bely & Golubkov 2008, Yatsyna 2008, 2010c, 2010d, 2010e, 2011a, Yatsyna & Kondratyuk 2013): cal, sil.
519. **Sarcogyne regularis** Körb. – GO (Bely & Golubkov 2008), GR (Yurchenko 2011, Golubkov 2014b), MI (Golubkov & Vynaev 1981, Yatsyna 2010a, Yurchenko 2011), VI (Kreyer 1913, Golubkov 1992, Bely & Golubkov 2008, Yatsyna 2010d, 2013f, Yurchenko 2011): cal.

520. **Sarcosagium campestre** (Fr.) Poetsch & Schied. – VI (Yatsyna 2011e, 2017): mus, ter.
521. **+Sarea difformis** (Fr.) Fr. – GO (Yatsyna 2014d), MI (Yatsyna 2011c, 2015c), MO (Yatsyna 2011c), VI (Yatsyna 2011e, 2017): res Pic, Pin.
522. **+Sarea resinae** (Fr.) Kuntze – GO (Golubkov 2010), MI (Yatsyna 2011c, 2014a, 2015c), MO (Lebedeva 1925, Yatsyna 2011c), VI (Yatsyna 2011c, 2011e, 2017): res Pic, Pin, Pis.
523. **Schaereria fuscocinerea** (Nyl.) Clauzade & Roux – VI (Kreyer 1913): cal.
524. **Schismatomma pericleum** (Ach.) Branth & Rostr. – BR (Makarevich 1960), GO (Golubkov 2011, Yatsyna & Motiejūnaite 2015), MI (Kobzar 2006), no exact locality (Gorbach 1962): cor, lig Bet, Pic, Qur.
525. **Sclerophora farinacea** (Chevall.) Chevall. – MI (Yatsyna 2014a, 2016a): cor Fre, Ulm.
526. **Sclerophora pallida** (Pers.) Y.J. Yao & Spooner – BR (Bely & Golubkov 2012), GO (Bely 2011a), GR (Yatsyna 2016a, 2016c), MI (Yatsyna 2011e, 2012c, 2013b, 2013c, 2014a, 2014b, 2015c, 2016a, Yatsyna & Yurchenko 2013), VI (Bely 2011a, Yatsyna 2011a, 2016a): cor Acp, Aln, Fre, Pin, Pot, Sal, Til, Ulm.
527. **Sclerophora peronella** (Ach.) Tibell – MI (Yatsyna 2014a, 2016a), VI (Yatsyna 2013f, 2016a): cor Poc, Til, Ulm.
528. **Scoliciosporum chlorococcum** (Graewe ex Stenh.) Vězda – BR (Golubkov 1987), GO (Golubkov 1992), GR (Makarevich 1960, Golubkov & Khartanovich 2004b, Yatsyna 2010g, Golubkov 2014a), MI (Golubkov 1992, Yatsyna 2010a, 2012b, 2013b, 2013c, 2015c, Bely 2011a, Yatsyna & Yurchenko 2013), VI (Kravchuk 2001, Yurchenko 2011, Bely 2011a, Yatsyna 2013a): cor Abi, Ahi, Aln, Bet, Fre, Pic, Pin, Sor, Til.
529. **Scoliciosporum umbrinum** (Ach.) Arnold – GR (Bachmann & Bachmann 1920), GR (Yatsyna 2016c), MI (Yatsyna 2010h, 2012b, Bely 2011a), VI (Kobzar 2006): cal, cor, sil Fra, Pic, Pot.
530. **Scytinium gelatinosum** (With.) Otálora, P.M. Jørg. & Wedin – GO (Golubkov 1992): cor Sal.
531. **Scytinium lichenoides** (L.) Otálora, P.M. Jørg. & Wedin – GR (Bachmann & Bachmann 1920, Golubkov & Bludov 2005, Golubkov 2013b, Yatsyna 2013d, Yatsyna & Motiejūnaite 2015): cor, mus Sal.
532. **Scytinium subtile** (Schrad.) Otálora, P.M. Jørg. & Wedin – GO (Golubkov 1992), VI (Kreyer 1913, Golubkov & Kobzar 2007, Bely 2011a, 2014): cor, lig, mus, ter Pin, Pot, Qur, Sal.
533. **Scytinium tenuissimum** (Dickson) Otálora, P.M. Jørg. & Wedin – VI (Kreyer 1913): ter.
534. **Sphinctrina turbinata** (Pers.: Fr.) De Not. – BR (Golubkov 1987), GO (Golubkov 1992), no exact locality (Tomin 1939): cor Car, on Pertusaria sp.
535. **Staurothele caesia** (Arnold) Arnold – MI (Yatsyna 2012b): cal.
536. **Staurothele drummondii** (Tuck.) Tuck. – GR (Golubkov 2013b): cal.
537. **Steinia geophana** (Nyl.) Stein – BR (Yatsyna & Motiejūnaite 2015), VI (Gapienko et al. 2014, Yatsyna 2017): mus, ter, on Peltigera didactyla.
538. **+Stenocybe major** Nyl. ex Körb. – GR (Golubkov 2014a), VI (Insarov & Pchelkin 1982): cor Bet Pin.
539. **+Stenocybe pullatula** (Ach.) Stein – GR (Yurchenko 2011), MI (Yatsyna 2014a, 2015c), VI (Titov 2006, Yatsyna 2013f): cor Aln.

540. **Stereocaulon condensatum** Hoffm. – BR (Krawiec 1938, Golubkov 1987, Yatsyna 2013a), GO (Ges 1960, Golubkov 1992), GR (Błoński 1889, Golubkov 1987), MI (Golubkov & Vynaev 1981, Golubkov 1992, Golubkov & Yesis 1997a, Yatsyna & Stefanovich 2005, Golubkov et al. 2013), VI (Kreyer 1913, Golubkov 1992, Yatsyna 2011a, 2011e), no exact locality (Tomin 1937, Golubkov 1992, Kobzar 1998): sil, ter.
541. **Stereocaulon dactylophyllum** Flörke – GR (Bachmann & Bachmann 1920), VI (Golubkov 1992): sil.
542. **Stereocaulon incrustatum** Flörke – BR (Krawiec 1938), GO (Golubkov 2011), GR (Golubkov 1993), VI (Golubkov 1993, Kobzar 2006): sil, ter.
543. **Stereocaulon paschale** (L.) Hoffm. – GO (Gorbach 1973b), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920), MI (Gorbach 1965d, Chernyshov 2003), VI (Gorbach 1973b), no exact locality (Gorbach 1965d, 1973b, Kobzar 1998): ter.
544. **Stereocaulon tomentosum** Fr. – BR (Tessendorff 1922, Krawiec 1938, Gorbach 1973b, Golubkov 1987, Yatsyna 2013a), GO (Savicz 1911, Golubkov & Vynaev 1981), GR (Bachmann & Bachmann 1920, Yatsyna 2010g), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Savicz 1925, Golubkov & Vynaev 1981, Golubkov 1992, Yatsyna & Stefanovich 2005, Yatsyna 2010a, Yurchenko 2011), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992, Yatsyna 2011a), no exact locality (Golubkov 1992): sil, ter.
545. **Strangospora moriformis** (Ach.) Stein – BR (Golubkov 1987, Yatsyna 2014d), GO (Golubkov 2011), GR (Bachmann & Bachmann 1920), MI (Golubkov & Yesis 1997b, Yatsyna 2013a, 2015a), MO (Yatsyna 2012a, 2013a), VI (Golubkov 1992, Yatsyna 2011a, 2011e, 2013a, 2017): cor, lig Jun, Pin, Pot.
546. **Tephromela atra** (Huds.) Hafellner – GO (Golubkov 1992), GR (Bachmann & Bachmann 1920, Bely & Golubkov 2012, Yatsyna 2016c), MI (Golubkov & Vynaev 1981, Bely & Golubkov 2012, Golubkov et al. 2013), MO (Yatsyna 2009b), VI (Kreyer 1913, Gorbach 1978, Bely & Golubkov 2012), no exact locality (Gorbach 1962): cal, cor, sil Aln, Pot. – Note: Several records of corticolous *T. atra* are included here, but their attribution to this taxon needs confirmation (Nimis 2016).
547. **Tetramelas insignis** (Nägeli ex Hepp) Kalb – BR (Golubkov 1987): cor Aln.
548. **Thelidium minutulum** Körb. – MI (Yatsyna & Yurchenko 2013): cal.
549. **Thelidium zwackhii** (Hepp) A. Massal. – VI (Gapienko et al. 2014): cor Aln.
550. **Thelocarpon impressellum** Nyl. – GR (Golubkov & Kobzar 2005): lig.
551. **Thelocarpon intermediellum** Nyl. – VI (Gapienko et al. 2014): lig Pin.
552. **Thelocarpon laureri** (Flot.) Nyl. – BR (Golubkov 1987), GO (Golubkov 2009b), VI (Kreyer 1913, Golubkov 1996, 2009b, Bely 2011a), no exact locality (Tomin 1956): lig, sil.
553. **#Thelocarpon lichenicola** (Fuckel) Poelt & Hafellner – VI (Yatsyna 2012d, 2017): ter.
554. **Thelotrema lepadinum** (Ach.) Ach. – BR (Golubkov 1987), GO (Golubkov 1992, 2007), GR (Makarevicz 1960, Golubkov 1987), MI (Bely 2011a), MO (Savicz 1925): cor, mus Car, Fre, Pic, Qur.
555. **Thrombium epigaeum** (Pers.) Wallr. – MI (Golubkov & Yesis 1997b): not indicated.
556. **Trapelia coarctata** (Turner ex Sm. & Sow.) M. Choisy – BR (Golubkov 1987), GO (Tsurykau & Khranchankova 2010b), GR (Bachmann & Bachmann 1920), MI (Golubkov & Yesis 1997b, Yurchenko 2011, Golubkov et al. 2013), VI (Golubkov 1992): cal, sil.

557. **Trapelia glebulosa** (Sm.) J.R. Laundon – GR (Bachmann & Bachmann 1920): sil.
558. **Trapelia involuta** (Taylor) Hertel – GO (Savicz 1911) GR (Bachmann & Bachmann 1920) VI (Kreyer 1913): sil.
559. **Trapeliopsis flexuosa** (Fr.) Coppins & P. James – BR (Golubkov 1987, Yurchenko 2011, Yatsyna 2014d), GO (Golubkov 2011, Yatsyna 2013a, Tsurykau & Khranchankova 2015), GR (Yatsyna 2010g, 2013a, Yurchenko 2011, Golubkov 2014a), MI (Bachmann & Bachmann 1920, Yatsyna 2009d, 2010a, 2010f, 2014a, 2015c, Yurchenko 2011), MO (Yatsyna 2013a), VI (Golubkov 1992, Yatsyna 2011e, 2017, Bely 2011a, 2015b), no exact locality (Tomin 1939, Gorbach 1962): cor, lig, ter Bet, Pic, Pin.
560. **Trapeliopsis gelatinosa** (Flörke) Coppins & P. James – GO (Wyssotzky et al. 1925): ter.
561. **Trapeliopsis granulosa** (Hoffm.) Lumbsch – BR (Golubkov 1987, Yatsyna 2013a), GO (Golubkov & Vynaev 1981, Golubkov 2011), GR (Yatsyna 2010g, 2013a, Golubkov 2014a), MI (Gorbach 1973b, Golubkov & Vynaev 1981, Yatsyna 2009d), VI (Yatsyna 2010c, 2010f, 2011a, Bely 2011a): cor, lig, ter Pin, Pot.
562. **Trapeliopsis pseudogranulosa** Coppins & P. James – VI (Yatsyna & Motiejūnaite 2015): lig Pin.
563. **Trapeliopsis viridescens** (Schräd.) Coppins & P. James – GR (Yatsyna 2010g), MO (Savicz 1925): lig.
564. **Umbilicaria deusta** (L.) Baumg. – GR (Golubkov 2013a), MI (Yatsyna 2010h, 2013e), VI (Golubkov 1993): sil.
565. **Usnea barbata** (L.) Weber ex F.H. Wigg. – BR (Golubkov 1987, Yurchenko 2011), GO (Ljubitskaja 1914), GR (Gilibert 1781, Golubkov 1987), MI (Bachmann & Bachmann 1920), MO (Savicz & Savicz 1924, Savicz 1925), no exact locality (Makarevich 1963, Gorbach 1965d): cor Aln, Bet, Pic, Pin, Qur. – Note: The report by Golubkov (2014c) from Berezinsky State Reserve seems to be doubtful as the species is not listed among the literature cited in that work.
566. **Usnea ceratina** Ach. – BR (Golubkov & Kobzar 2005), GR (Golubkov 1987), MI (Bachmann & Bachmann 1920, Bely 2010b), VI (Golubkov 1993, Bely 2008b, 2010b): cor Aln, Bet.
567. **Usnea dasopoga** (Ach.) Nyl. – BR (Krawiec 1938, Golubkov 1987, Kobzar 2006, Bely 2011a, Yatsyna 2013a), GO (Ges 1960, Golubkov & Vynaev 1981, Golubkov 1987, 1992, 2007), GR (Golubkov 1987, 2014a, Kobzar 2006, Yatsyna 2010g, 2013a, 2016c), MI (Bachmann & Bachmann 1920, Oksner 1925, Gorbach 1955, Golubkov & Vynaev 1981, Golubkov 1987, Chernyshov 2003, Kobzar 2006, Yurchenko 2011, Bely 2011a, Yatsyna 2013a), MO (Kobzar 2006, Yatsyna 2009b, 2012a), VI (Gorbach & Osmolovskaya 1965, Gorbach 1973b, 1978, Insarov & Pchelkin 1982, Golubkov 1987, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010f, 2011a, 2017, Bely & Golubkov 2009a, Bely 2011a), no exact locality (Gorbach 1965d, 1973b, Golubkov 1992, Yatsyna 2009e): cor Aln, Bet, Fre, Pic, Pin, Qup, Qur, Sal. – Note: Records of *U. plicata* F.H. Wigg. from Belarus are here referred to *U. dasopoga* (Ach.) Nyl. based on Golubkova (1996). Also, the report by Kreyer (1913) seems to be doubtful based on the variable morphology of mainly juvenile thalli found by Kreyer. The supporting specimens should be reexamined to confirm that this is the case.
568. **Usnea florida** (L.) Weber ex F.H. Wigg. – BR (Golubkov 1987), GO (Kreyer 1913), GR (Gilibert 1781, 1792), MI (Bachmann & Bachmann 1920, Golubkov 1992, Golubkov et al. 2013), MO (Downar 1861, Kreyer 1913, Savicz 1925, Kobzar 2006), VI (Kreyer 1913, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Bely 2008b), no exact locality (Gorbach 1962, 1973b): cor, lig Acp, Aln, Bet, Car, Pin, Pic, Qur, Sal.
569. **Usnea fragilescens** Hav. – VI (Insarov & Pchelkin 1982): cor Pin.

570. **Usnea fulvoreagens** (Räsänen) Räsänen – BR (Kobzar 2006), GO (Golubkov & Vynaev 1981), MI (Gorbach 1965d, Yurchenko 2011), MO (Yurchenko 2011), VI (Gorbach & Osmolovskaya 1965, Gorbach & Mashenkova 1967, Golubkov & Kobzar 2007), no exact locality (Gorbach 1965d): cor Bet, Pin.
571. **Usnea glabrata** (Ach.) Vain. – MO (Yurchenko 2011), MI (Bachmann & Bachmann 1920): cor Pin.
572. **Usnea glabrescens** (Nyl. ex Vain.) Vain. ex Räsänen – BR (Golubkov 1987), GO (Golubkov 1992), GR (Golubkov 1987), MI (Gorbach 1965d, Golubkov 1992), MO (Savicz 1925), VI (Gorbach & Osmolovskaya 1965, Gorbach & Mashenkova 1967, Golubkov 1992, Golubkov & Kobzar 2007, Bely 2011a), no exact locality (Gorbach 1962): cor Aln, Bet, Pic, Pin, Pot, Qur, Sal.
573. **Usnea hirta** (L.) Weber ex F.H. Wigg. – BR (Tessendorff 1922, Krawiec 1938, Golubkov 1987, Bely 2011a, Yatsyna 2013a, Bely & Kudin 2016), GO (Savicz 1909, Wyssotzky et al. 1925, Ges 1960, Palamarchuk et al. 1975, Lapitskaya et al. 1979, Golubkov & Vynaev 1981, Kravchuk 2000, Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khramchankova 2008, Tsurykau et al. 2009, Golubkov 2011, Tsurikova 2013, Yatsyna 2014d), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Golubkov 1987, 2014a, Kobzar 2006, Andreeva et al. 2006, Yatsyna 2010g, 2013a, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Oksner 1924, Savicz & Savicz 1924, Gorbach 1955, Golubkov & Vynaev 1981, Shukanov et al. 1986, Kravchuk & Kakareka 1995, Chernyshov 2003, Kobzar 2006, Yatsyna 2009d, 2010a, 2010f, 2013a, 2013b, 2013c, 2015c, Bely 2011a, 2012c, Yatsyna & Yurchenko 2013), MO (Savicz & Savicz 1924, Savicz 1925, Kravchuk & Kakareka 1998, Yatsyna 2004, 2009b, 2013a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1978, Insarov & Pchelkin 1982, Golubkov 1991, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1962, 1973b, Yatsyna 2009e): cor, fol, lig Abi, Acp, Ahi, Aln, Bet, Car, Fre, Jun, Lar, Pic, Pin, Pis, Poc, Pon, Pot, Qur, Sal, Sor, Til.
574. **Usnea lapponica** Vain. – GO (Tsurykau 2017c), VI (Golubkov & Kobzar 2007): cor Bet, Pin. – The reports by Golubkov (1987, 1992) are based on an incorrect nomenclatural update of *U. fulvoreagens*.
575. **Usnea rubicunda** Stirt. – VI (Insarov & Pchelkin 1982): cor Pin.
576. **Usnea subfloridana** Stirt. – BR (Krawiec 1938, Golubkov 1987), GO (Golubkov & Vynaev 1981, Golubkov 1992, 2007, 2011, Tsurykau 2005, Kobzar 2006, Tsurykau et al. 2009, Tsurikova 2013), GR (Kobzar 2006, Yurchenko 2011, Yatsyna 2013a, Golubkov 2014a), MI (Golubkov & Vynaev 1981, Golubkov 1992, Chernyshov 2003, Kobzar 2006, Yatsyna 2009d, 2010a, Bely 2011a), MO (Kravchuk 2001, Kobzar 2006, Yatsyna 2009b, 2012a, 2013a), VI (Gorbach 1978, Golubkov 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010f, 2011a, 2017, Bely 2011a), no exact locality (Gorbach 1965d, Golubkov 1992): cor, lig Abi, Aln, Bet, Pic, Pin, Pot, Qup, Qur.
577. **Usnea wasmuthii** Räsänen – GO (Tsurykau & Tsurikova 2017): cor Pin.
578. **Varicellaria hemisphaerica** (Flörke) I. Schmitt & Lumbsch – VI (Gorbach 1970): cor Pin.
579. **Varicellaria lactea** (L.) I. Schmitt & Lumbsch – MI (Golubkov & Vynaev 1981), GR (Gilibert 1781): sil. – Note: The report of *V. lactea* by Gorbach (1973b) is based on an incorrect nomenclatural update of historical report of *Variolaria lactea* var. *arborea* by Kreyer (1913). However, the latter name corresponds to *Ochrolechia arborea* (Ljubitzkaja 1914).
580. **Variospora aurantia** (Pers.) Arup, Søchting & Frödén – GR (Yurchenko 2011), VI (Yurchenko 2011): cal.
581. **Verrucaria aethiobola** Wahlenb. – BR (Golubkov 1987), GR (Golubkov 1987), MI (Golubkov & Vynaev 1981, Yatsyna 2010a), VI (Bachmann & Bachmann 1920, Golubkov 1992, Yatsyna 2011e): cal, sil.
582. **Verrucaria floerkeana** Dalla Torre & Sarnth. – VI (Bachmann & Bachmann 1920): cal.

583. **Verrucaria fusca** Pers. – GO (Gorbach 1973b), GR (Bachmann & Bachmann 1920, Yatsyna 2016c), VI (Yatsyna 2011a): sil, ter.
584. **Verrucaria hydrela** Ach. – VI (Yatsyna 2013f, 2017): sil. – Note: The report by Yurchenko (2011) based on an incorrect nomenclatural update of *V. laevata* from the historical report of Bachmann and Bachmann (1920).
585. **Verrucaria madida** Orange – VI (Yatsyna 2013f): sil.
586. **Verrucaria muralis** Ach. – GO (Tsurykau & Khranchankova 2011a), GR (Yatsyna 2016c), MI (Golubkov & Vynaev 1981, Yatsyna 2005, 2013b, 2013b, Yurchenko 2011, Yatsyna & Yurchenko 2013), VI (Kreyer 1913, Gorbach 1973b, Yatsyna 2010c, 2011a), no exact locality (Gorbach 1973b, Golubkov 1992): cal, sil.
587. **Verrucaria nigrescens** Pers. – GO (Golubkov 2011), GR (Bachmann & Bachmann 1920, Golubkov 1987, 2014a, 2014b, Yurchenko 2011, Yatsyna 2016c), MI (Gorbach 1973b, Golubkov & Vynaev 1981, Yatsyna & Stefanovich 2005, Yatsyna 2010a, 2013a, 2013b, 2013c, 2014a, 2014b, 2015c, Yatsyna & Yurchenko 2013), MO (Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Golubkov 1992, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2010c, 2010d, 2011a): cal, sil.
588. **Verrucaria praetermissa** (Trevis.) Anzi – VI (Yatsyna 2013f): cor, sil Aln.
589. **Verrucaria rupestris** Schrad. – VI (Bachmann & Bachmann 1920): cal.
590. **Veizdaea aestivalis** (Ohlert) Tscherm.-Woess & Poelt – VI (Yatsyna 2011a, Gapienko et al. 2014): mus, ter.
591. **Veizdaea leprosa** (P. James) Vězda – VI (Gapienko et al. 2014): cor Acp.
592. **Violella fucata** (Stirt.) T. Sprib. – GO (Tsurykau et al. 2014a), GR (Tsurykau et al. 2014a), MO (Tsurykau et al. 2014a): cor Pin.
593. **Xanthomendoza coppinsii** S.Y. Kondr. & Kärnefelt – GR (Golubkov 2013a, Yatsyna & Kondratyuk 2013, Yatsyna 2016c), MI (Yatsyna 2013c, 2014a, Yatsyna & Kondratyuk 2013), VI (Golubkov 2013a): cor Acp, Fre, Qur, Til, Ulm.
594. **Xanthomendoza fulva** (Hoffm.) Søchting, Kärnefelt & S.Y. Kondr. – GO (Tsurykau & Kondratyuk 2011), GR (Yatsyna 2016c), MI (Yatsyna 2013b, 2013c, 2014a, Yatsyna & Kondratyuk 2013), VI (Yatsyna 2010e): cor Acp, Fre, Til, Ulm.
595. **Xanthomendoza huculica** (S.Y. Kondr.) Diederich – BR (Bely & Golubkov 2012, Yatsyna & Kondratyuk 2013), GO (Ges 1960, Kravchuk 2001, Tsurykau & Khranchankova 2007, 2008), GR (Golubkov & Khartanovich 2004a, 2004b, 2005, Yatsyna 2010e, 2016c, Bely & Golubkov 2012), MI (Golubkov & Yesis 1997a, Kravchuk 2001, Yatsyna & Stefanovich 2005, Yatsyna 2005, 2010e, 2013b, 2013c, 2014a, 2014b, 2015c, Bely & Golubkov 2012, Yatsyna & Yurchenko 2013, Yatsyna & Kondratyuk 2013), MO (Yatsyna 2010e, Yatsyna & Kondratyuk 2013), VI (Bely & Golubkov 2012, Yatsyna & Kondratyuk 2013): cal, cor Acn, Acp, Ahi, Bet, Fre, Poa, Pob, Pon, Pot, Qur, Rob, Til, Ulm.
596. **Xanthomendoza ulophyllodes** (Räsänen) Søchting, Kärnefelt & S.Y. Kondr. – MI (Yatsyna 2013b, 2014a, 2014b, 2015c): cor Fre, Poc, Til.
597. **Xanthoparmelia conspersa** (Ehrh. ex Ach.) Hale – BR (Golubkov 1987, Golubkov et al. 2007b), GO (Kobzar 2006, Golubkov et al. 2007a, Tsurykau & Khranchankova 2009b), GR (Bachmann & Bachmann 1920, Golubkov 1992, 1997, 2014a, Kobzar 2006, Yatsyna 2010g, 2016c), MI (Oksner 1924, Golubkov & Vynaev 1981, Golubkov & Rykovsky 1988, Golubkov 1997, Chernyshov 2003, Kobzar 2006, Yatsyna 2010a, 2012c, 2013a, 2013c, 2014a, Yurchenko 2011, Yatsyna & Yurchenko 2013), MO (Savicz 1925,

Yatsyna 2009b), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach 1965d, Golubkov 1992, 1997, Yatsyna 2010c, 2010d, 2011a), no exact locality (Gorbach 1965d): sil.

598. **Xanthoparmelia loxodes** (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – GR (Golubkov et al. 2007b, Bely & Golubkov 2009a, Yatsyna 2016c), MI (Golubkov & Yesis 1997a, Bely & Golubkov 2009a, Yurchenko 2011), MO (Golubkov et al. 2007b, Yatsyna 2009b), VI (Golubkov et al. 2007b, Bely & Golubkov 2009a, Yatsyna 2010c): sil.
599. **Xanthoparmelia pulla** (Ach.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – BR (Golubkov 1987, Golubkov et al. 2007b), GO (Golubkov & Vynaev 1981, Tsurykau & Khramchankova 2009b), GR (Bachmann & Bachmann 1920, Golubkov 1997, 2014a, Kobzar 2006, Yatsyna 2010g, 2016c), MI (Oksner 1925, Golubkov & Vynaev 1981, Yatsyna 2005, 2010a, 2014a, Kobzar 2006, Yurchenko 2011, Yatsyna & Yurchenko 2013), MO (Yatsyna 2009b), VI (Kreyer 1913, Gorbach 1965d, Golubkov 1992, 1997, Golubkov & Kobzar 2007, Golubkov et al. 2007b, Yatsyna 2010c): sil.
600. **Xanthoparmelia angustiphylla** (Gyeln.) Hale. – GR (Golubkov et al. 2007b), MI (Bely & Golubkov 2012), VI (Golubkov 1992), no exact locality (Yatsyna 2009e): sil.
601. **Xanthoparmelia verruculifera** (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – BR (Golubkov 1987, 1992, Golubkov et al. 2007b), GO (Golubkov 2007), GR (Bachmann & Bachmann 1920, Golubkov 1997, Golubkov et al. 2007b, Yatsyna 2010g), MI (Gorbach 1965d, Golubkov & Vynaev 1981, Golubkov 1987, 1997, Yatsyna 2010a, Golubkov et al. 2013), MO (Golubkov et al. 2007b), VI (Golubkov 1987, 1991, 1992, Golubkov & Kobzar 2007, Golubkov et al. 2007b, Yatsyna 2010c): sil.
602. **Xanthoria parietina** (L.) Th. Fr. – BR (Suza 1928, Krawiec 1938, Golubkov 1987, Kobzar 2006, Yatsyna 2010e, 2014d, Bely 2011a, Padtsiarob et al. 2013, Bely & Kudin 2016), GO (Savicz 1909, Kreyer 1913, Wyssotzky et al. 1925, Ges 1960, Danilchuk et al. 1976, Golubkov & Vynaev 1981, Kravchuk 2000, 2001, Tsurykau 2004, 2005, 2010, Timoshenkova & Tsurykau 2005, Kobzar 2006, Golubkov et al. 2007a, Tsurykau et al. 2007, 2009, Tsurykau & Khramchankova 2008, 2010a, Bely 2010a, 2011a, Yatsyna 2010e, Yurchenko 2011, Golubkov 2011, Sobchanka et al. 2012, Padtsiarob et al. 2013, Tsurykau & Etayo 2017, Tsurykau & Tsurikova 2017), GR (Gilibert 1781, 1792, Bachmann & Bachmann 1920, Gorbach 1978, Golubkov 1987, 2014a, Kravchuk 2001, Golubkov & Khartanovich 2004a, 2004b, 2005, Kobzar 2006, Andreeva et al. 2006, Valko 2008, Yatsyna 2010e, 2010g, 2016c, Bely 2011a), MI (Bachmann & Bachmann 1920, Savicz 1925, Gorbach 1955, 1961, Golubkov & Vynaev 1981, Shukanov et al. 1986, Kravchuk & Kakareka 1995, Vyazovskaya & Golubkov 1997, Kobzar 1997, 2006, Yurchenko & Golubkov 2003, Chernyshov 2003, 2004c, Yatsyna 2005, 2010a, 2010e, 2012b, 2012c, 2013b, 2013c, 2014a, 2014b, Mavrishev & Dyukova 2008a, Bely 2010c, 2011a, Yurchenko 2011, Bely & Nikolaichuk 2012, Yatsyna & Yurchenko 2013, Padtsiarob et al. 2013, Padtsiarob & Bely 2015, Dobysh & Gaevskii 2016), MO (Downar 1861, Kreyer 1913, Savicz & Savicz 1924, Savicz 1925, Kravchuk & Kakareka 1998, Yurchenko & Golubkov 2003, Kobzar 2006, Yatsyna 2009b, Yatsyna 2010e, Bely 2011a, Tsurykau et al. 2016a), VI (Kreyer 1913, Bachmann & Bachmann 1920, Gorbach & Mashenkova 1967, Gorbach 1978, Golubkov 1991, Kobzar 2006, Golubkov & Kobzar 2007, Yatsyna 2008, 2010c, 2010d, 2010e, 2011a, 2017, Yurchenko 2011, Bely 2011a, Padtsiarob et al. 2013), no exact locality (Gorbach 1956, 1957, Bely 2013): cal, cor, fol, lig, met, sil Abi, Acd, Acn, Acp, Acr, Acs, Act, Ahi, Aln, Bet, Car, Coa, Euo, Fra, Fre, Jug, Lar, Mal, Pce, Pdi, Pdo, Pic, Pin, Pma, Poa, Pob, Poc, Pon, Pot, Ppa, Pse, Pyr, Qur, Rob, Sal, Sor, Til, Ulm.
603. **Xanthoria polessica** S.Y. Kondr. & A.P. Yatsyna – BR (Kondratyuk et al. 2013), GO (Kondratyuk et al. 2013), GR (Kondratyuk et al. 2013), MI (Kondratyuk et al. 2013, Yatsyna 2014a), MO (Kondratyuk et al. 2013): cor, lig Acp, Ahi, Fre, Pot, Qur, Sal, Til, Ulm.
604. **Xylographa parallela** (Ach.: Fr.) Fr. – GO (Golubkov 1992, 2011), GR (Bachmann & Bachmann 1920), MI (Bachmann & Bachmann 1920, Yatsyna 2015a), VI (Kreyer 1913, Gorbach 1973b, Kobzar 1985, Yatsyna 2010c): cor, lig Bet, Pic, Pin.
605. **Xylopsora friesii** (Ach.) Bendiksby & Timdal – GO (Tsurykau & Khramchankova 2015, Tsurykau 2017c), VI (Bely & Sidorovich 2013): cor, lig, roo Pin.

606. **Zwackhia viridis** (Ach.) Poetsch & Schied. – BR (Golubkov 1987), GO (Tsurykau & Khranchankova 2009b, Yurchenko 2011), GR (Golubkov 1987), MO (Tomin 1939, Yatsyna 2012a), VI (Yatsyna 2011e), no exact locality (Yatsyna 2009e): cor Car, Fre, Qur. – Note: The report by Golubkov (1992) may be erroneous because the species was not listed in subsequent papers (e.g. Golubkov 2011).

EXCLUDED AND DOUBTFUL SPECIES

- Acarospora nitrophila** H. Magn. – This is currently considered to be a rare saxicolous species only known with certainty from Norway and Sweden (Knudsen & Kocourková 2017). Evidently, the specimen identified by Yurchenko (2011) should be critically revised.
- Acarospora peliocypha** (Wahlenb.) Th. Fr. – This species was reported by Yatsyna and Merzhvinsky (2012) who referred to Bachmann and Bachmann (1920). However, the species was not cited in the latter publication.
- Arrhenia griseopallida** (Desm.) Watling – This species was reported as *Omphalina griseopallida* (Desm.) Quel. by Yurchenko (2011), but it is a Basidiomycete that is no longer considered to be lichenized.
- Arthonia apatetica** (A. Massal.) Th. Fr. – The report of this species is based on an incorrect nomenclatural update of *A. exilis* by Yurchenko (2011) and Yatsyna & Merzhvinsky (2012). The original report should be treated as *A. exilis* (Makarevich 1960).
- Aspicilia trachytica** (A. Massal.) Arnold – This species was reported by Yurchenko (2011) without additional information. According to Nimis (2016), it is a very poorly known silicicolous species from in the Mediterranean area, southern central Europe and Iran. Further study is needed before including it in the checklist for Belarus.
- Bacidia coprodes** (Körb.) Lettau – This species was reported by Kreyer (1913) as well as Bachmann and Bachmann (1920). These reports were doubted by Oksner (1968), however, and the description and ecology of the taxon in these early reports do not match those of (Ekman 2014). Further study is needed before including it in the checklist for Belarus.
- Bacidia trachona** (Ach.) Körb. – This name was erroneously cited by Tomin (1937, 1956) and later by Yurchenko (2011) as a synonym of *B. coprodes* (Ekman 2014). The species has not been documented from Belarus.
- Bellemerea cinereorufescens** (Ach.) Clauzade & Cl. Roux – This species was reported by Yatsyna and Merzhvinsky (2012) who referred to Golubkov without a specific citation of a source. However, the name was not located in any of Golubkov's published contributions. According to Nimis (2016), *B. cinereorufescens* grows on metal-rich siliceous rocks in upland areas. Further study is needed before including in the checklist for Belarus.
- Bilimbia microcarpa** (Th.Fr.) Th.Fr. – This species was reported as *Myxobilimbia* cf. *microcarpa* (Th. Fr.) Hafellner by Yurchenko (2011). However, the description does not clearly fit *B. microcarpa* and therefore it seems premature to accept this arctic-alpine species as occurring in the region. Further study is needed before including in the checklist for Belarus.
- Brianaria bauschiana** (Körb.) S. Ekman & M. Svensson – This species was reported as *Micarea bauschiana* (Körb.) V. Wirth & Vězda based on an incorrect nomenclatural update of *Lecidea lynceola* Th. Fr. by Yatsyna and Merzhvinsky (2012). Following to the description by Bachmann and Bachmann (1920), the original report should be treated as *Micarea lynceola*. For its part, *B. bauschiana* has an oceanic distribution that reaches the eastern edge of its European distribution in Poland (Czarnota 2007).
- Bryoria bicolor** (Ehrh.) Brodo & D. Hawksw. – This taxon was reported by Yurchenko (2011) and Yatsyna and Merzhvinsky (2012) based on an update of the synonym *Alectoria bicolor* (Ehrh.) Nyl. Both reports are based on Krawiec (1938). However, Krawiec reported the species from the vicinity of Białowieża village, which is now in Poland.
- Bryoria lanestris** (Ach.) Brodo & D. Hawksw. – This species was reported by Yatsyna and Merzhvinsky (2012) who referred publication by Golubkov without a specific citation of a source. However, the species was not located in any of Golubkov's published contributions. The identification of the single specimen stored in MSK is questionable and requires further study (Golubkov, pers. comm.).
- Bryoria subcana** (Nyl. ex Stizenb.) Brodo & D. Hawksw. – This species was reported as *Alectoria haynaldii* Gyeln. by Gorbach (1965a, 1965d, 1973b) who noted positive K and P (both yellow)

spot test reactions in her papers and handbooks. *Bryoria subcana* produces fumarprotocetraric acid and has a strong positive P red reaction in the cortex (Myllys et al. 2011). Given the inconsistency in the spot test reactions, all Belarusian reports of *A. haynaldii* and *B. subcana* are temporarily treated as *B. capillaris* pending further study.

Byssoloma leucoblepharum (Nyl.) Vain. – This crustose species was reported by Yurchenko (2011) based on a historical report of *Byssoloma tricholomum* (Mont.) Zahlbr. by Savicz and Savicz (1924). Following Makarevich (1977c), the material in LE collected by Savicz and Savicz belongs to *Byssoloma subdiscordans* (Nyl.) P. James.

Caloplaca aractina (Fr.) Häyrén – This species was reported by Kondratyuk et al. (2004) based on a historical report by Kreyer (1913). However, *Placodium gilvum* (Hoffm.) Vain. var. *aractina* (Fr.) Th. Fr., as reported by Kreyer, much more likely corresponds to the closely related and widespread *C. chlorina*, which is known from Belarus. *Caloplaca aractina* is a species of coastal rock outcrops (Fletcher & Laundon 2009), and this habitat is not present in Belarus, hence the occurrence of the species is unlikely.

Caloplaca percrocata (Arnold) J. Steiner – This species was reported by Kondratyuk et al. (2004) with no additional information. In neighboring countries, *C. percrocata* is confined to mountainous areas and was reported from alpine belt (Wilk & Flakus 2006, Vondrák et al. 2010). Therefore, this record is temporarily treated as doubtful pending further study.

Caloplaca virescens (Sm.) Coppins – This species was reported by Yatsyna (2013c, 2014a, 2015c). According to Šoun et al. (2011), the identity of *C. virescens* is unclear. Hence it is excluded from the present checklist pending further study.

Caloplaca viridirufa (Ach.) Zahlbr. – Gorbach (1973b) reported this species based on historical report of *Placodium gilvum* (Hoffm.) Vain. var. *aractina* (Fr.) Th. Fr. by Kreyer (1913). However, the report corresponds to *C. chlorina* (see note under *Caloplaca aractina*).

Catillaria chalybeia (Borrer) A. Massal. – This species was reported by Tomin (1939), who cited Kreyer (1913). However, the species was not mentioned by Kreyer, and thus it is not included in the present list.

Catillaria lenticularis (Ach.) Th. Fr. – This species was reported as *Biatorina lenticularis* (Ach.) Körb. var. *vulgaris* Körb. by Kreyer (1913). However, the report apparently does not refer to this species as the description (dark-olive tips of paraphyses, and large ascospores, $10.4\text{--}13 \times 4\text{--}5 \mu\text{m}$) and ecology (aspen bark) do not correspond to the current understanding of the taxon (e.g. Hertel et al. 2007).

Cetraria juniperina (L.) Ach. – The report of this species is based on a doubtful record with no collection data (Rassadina 1971). No specimen from Belarus has been found in LE (Gagarina, pers. comm.) and the species is excluded from the present checklist.

Cerothallia luteoalba (Turner) Arup, Frödén & Søchting – Bely (2011a) reported this species as *Caloplaca luteoalba* (Turner) Th. Fr.; however, the vouchers were misidentified and belong to other species (Bely, pers. comm.).

Cladonia brevis (Sandst.) Sandst. – Yatsyna (2014c) reported this species without specific data as to its occurrence and ecology. According to Ahti and Stenroos (2013), TLC is needed to separate the species from the morphologically indistinguishable *C. polycarpoides* Nyl. and other similar taxa. Hence it is excluded from the present checklist pending further study.

Cladonia ciliata Stirt. – This species was reported by Yatsyna (2009c), but the vouchers instead belong to *C. tenuis* (Golubkov et al. 2013).

Cladonia humilis (With.) J.R. Laundon – This species was incorrectly reported by Golubkov and Yesis (1997a) and Bely (2011a); subsequent revision of the material by Tsuryskau & Golubkov (2015) showed that it belonged to other species.

Cladonia macroceras (Delise) Hav. – This taxon was reported by Tsettermann (1948) as *Cladonia elongata* (Jacq.) Hoffm., which is almost certainly based on the nomenclatural update of *C. gracilis* var. *elongata* (Jacq.) Flörke (Bachmann & Bachmann 1920). The original report can be treated as *C. gracilis* ssp. *elongata* (Wulfen) Vain. because no morphological evidence was provided to accept *C. macroceras*, an arctic-alpine species, as occurring in the territory of Belarus. The report of *C. elongata* f. *ceratostelis* Flot. comb. inval. (Gorbach 1973b) seems to be doubtful and the entry should be treated as *C. gracilis* f. *ceratostelis* Flot. Vouchers assigned to *C. macroceras* by Bely (2010a, 2011b) were misidentified and belong to other species (Bely, pers. comm.). Furthermore, its occurrence in Belarus was already doubted by T. Ahti (see Yuchenko 2011).

- Cladonia polycephala** Hoffm. nom. illeg. – Yurchenko (2011) reported this species based on Jundzill (1830). However, that historical report cited no exact locality, and covered a large geographic area including modern Belarus, Lithuania, Poland and Ukraine. The species is excluded from the present list pending further study.
- Coniocarpon cinnabarinum** DC. – This species was reported as *Arthonia cinnabarina* (DC.) Wallr. by Makarevich (1977a). However, the report did not include any specific data for the record, and no voucher from Belarus has been found in LE (Gagarina, pers. comm.). As such, the species is not included in the present checklist.
- Cyphelium inquinans** (Sm.) Trevis. – This species was reported by Roms (1975) without any specific information as to the provenance or ecology of the material. No specimen from Belarus has been found in LE (Gagarina, pers. comm.). As such the species is not included in the present checklist.
- Cyphelium lucidum** (Th. Fr.) Th. Fr. – This species was reported by Roms (1975) without any specific information as to the provenance or ecology of the material. No specimen from Belarus has been found in LE (Gagarina, pers. comm.). As such, the species is not included in the present checklist.
- Diplolepta nivalis** (Begl. & Carestia) Hafellner – This species parasitizes *Rusavskia elegans* thalli growing on rocks (Bungartz et al. 2007), and therefore the report based on an historic corticolous specimen (Yurchenko 2011) is extremely unlikely to be this species. It is not included in the present checklist.
- Frutidella caesioides** (Schaer.) Kalb – This species was reported by Andreev (2003a) without any specific information as to the provenance or ecology of the material. No specimen from Belarus has been found in LE (Gagarina, pers. comm.). As such, the species is not included in the present checklist.
- Fuscopannaria praeterrima** (Nyl.) P.M. Jørg. – Yurchenko (2011) reported this species based on the report of *Lecidea vesicularis* in Jundzill (1830). However, that historical report cited no exact locality, and covered a large geographic area including modern Belarus, Lithuania, Poland and Ukraine. The species is excluded from the present list pending further study.
- Halecania rhytidiza** (Nyl.) Coppins – Golubkov (1992) reported this species, but the vouchers instead belong to *Mycobilimbia pilularis* (Golubkov & Kobzar 2007).
- Hypocenomyce caradocensis** (Leight. ex Nyl.) P. James & Gotth. Schneid. – This species was mentioned by Yatsyna (2014c) without any specific information as to the provenance or ecology of the material. It was also not been included in the latest summary of new Belarusian records (Yatsyna & Motiejūnaite 2015). The species is excluded from the present list pending further study.
- Lathagrium fuscovirens** (With.) Otálora, P.M. Jørg. & Wedin – This species was reported as *Collema fuscovirens* (With.) J.R. Laundon by Yurchenko (2011) and Yatsyna & Merzhvinsky (2012) based on a nomenclatural update of *Parmelia furva* (Ach.) Ach. in Jundzill (1830). However, that historical report cited no exact locality, and covered a large geographic area including modern Belarus, Lithuania, Poland and Ukraine. The species is excluded from the present list pending further study.
- Lecanactis abietina** (Ach.) Körb. – Yurchenko (2011) reported this species based on a nomenclatural update of *Schismatomma abietinum* (Humb.) A. Massal. nom. illeg. published in Golubkov (1987, 1992). However, Golubkov cited Makarevich (1960) and Gorbach (1962, 1973) who reported *Schismatomma pericleum* rather than *S. abietinum*. As such *L. abietina* is not included on the present list.
- Lecania prasinoidea** Elenk. – This species was reported by Savicz (1925), Gorbach (1955), Gorbach & Mashenkova (1967), Golubkov & Vynaev (1981) and Golubkov (1987). However, the reports almost certainly do not refer to this species based on their ecology and descriptions (see also Motiejūnaite & Czyżewska 2008). Some of these reports were already considered questionable by Golubkov et al. (2013). Further study is needed before *L. prasinoidea* should be included in the checklist for Belarus.
- Lecanora cadubriana** (A. Massal.) Hedl. – This report was based on a nomenclatural update of *Lecidea obscurella* (Sommerf.) Arnold by Yurchenko (2011). However, the latter name could refer to either *L. cadubriana* and *L. phaeostigma* (see Nimis 2016). The original report (Bachmann & Bachmann 1920) probably refers to *L. phaeostigma*, which was recently confirmed from Belarus (Golubkov 1997, 2011). For its part, *L. cadubriana* is a montane species growing mainly at elevations above 1500 m (e.g. Ryan et al. 2004, Nimis 2016), and thus its occurrence in Belarus is unlikely. As the Bachmann herbarium was destroyed during World War II, there is no chance to reexamine the supporting voucher.

- Lecanora conferta** (Duby ex Fr.) Grognot – This report was based on an incorrect nomenclatural update of *Lecanora lithophila* Oksner by Yurchenko (2011). The latter species was also erroneously reported for Belarus (see below), however, it differs in having negative C reaction, as well as a darker, finely granular thallus (e.g. Makarevicz 1971b).
- Lecanora intricata** (Ach.) Ach. – This report was based on an incorrect nomenclatural update of *Lecanora mutabilis* (Ach.) Nyl. by Yatsyna and Merzhvinsky (2012). The original report belongs to *Megaspora verrucosa* (Gorbach 1962). *Lecanora intricata* was also reported by Kobzar (2006) from Aspen bark. However, this is a saxicolous species rarely inhabiting worked wood (e.g. Ryan et al. 2004). As such, the latter report seems doubtful, especially given that no description was provided. The species is excluded from the present list pending further study.
- Lecanora lithophila** (Wallr.) Oksner – This species was reported by Tomin (1956) and Kobzar (1983). Tomin referred to Kreyer (1913) who reported *Lecanora umbrina* (Ehrh.) A. Massal. var. *lithophila* (Wallr.) Körb., which is now treated as *Lecanora umbrina*. The report of Kobzar (1983) should be treated as *Myriolecis dispersa*. Yatsyna and Merzhvinsky (2012) mentioned this species referring to Bachmann & Bachmann (1920: 330), but the species was not actually cited by the latter authors.
- Lecanora strobilina** (Spreng.) Kieff. – This report was based on an incorrect nomenclatural update of *Lecanora conizaea* (Ach.) Nyl. by Tsuryskau and Khranchankova (2010b). The original report belongs to *Lecanora expallens* (Kravchuk 2001).
- Lecanora subcarnea** (Lilj.) Ach. – This species was reported by Yurchenko (2011), accompanied by description from Makarevicz (1971b) that does not match modern concept of this species (e.g., Edwards et al. 2009). As no TLC data were provided, the identification seems to be doubtful and the species is not included in the present list.
- Lecidea lapicida** (Ach.) Ach. – Yurchenko (2011) reported this species based on Jundzill (1830). However, that historical report cited no exact locality, and covered a large geographic area including modern Belarus, Lithuania, Poland and Ukraine. The species is excluded from the present list pending further study.
- Lecidea plana** (J. Lahm) Nyl. – This report by Yurchenko (2011) and Yatsyna & Merzhvinsky (2012) was based on a nomenclatural update of *Lecidea latypea* Ach. that was reported by Kreyer (1913). However, Kreyer (1913) mentioned a positive yellow spot test reaction with KOH, and therefore the original report almost certainly corresponds to *Lecidella carpathica*.
- Lecidella scabra** (Taylor) Hertel & Leuckert – This species was reported by Andreev (2003b). However, the report did not include any specific data for the record, and no voucher from Belarus has been found in LE (Gagarina, pers. comm.). As such, the species is not included in the present checklist.
- Melaspilea enteroleuca** (Ach.) Ertz & Diederich – This species was reported as *Lecidea enteroleuca* Ach. by Bachmann and Bachmann (1920) based on material from siliceous rock. According to Ertz and Diederich (2015) it is corticolous species, and the historical report likely instead refers to a *Lecidella* species.
- Melaspilea urceolata** (Fr.) Ertz & Diederich – This species was reported as *Dactylospora urceolata* (Th. Fr.) Arnold by Yurchenko (2011) based on a nomenclatural update of *Lecidea enteroleuca* Ach. As is discussed under *M. enteroleuca*, the original report by Bachmann and Bachmann (1920) is almost certainly erroneous.
- Mycobilimbia tetramera** (De Not.) Vitik., Ahti, Kuusinen, Lommi & T. Ulvinen ex Hafellner & Türk – This species was reported as *Biatora tetramera* (De Not.) Coppins by Golubkov (2011). However, *M. tetramera* is arctic-alpine species that is confined to high elevations (ca. 3500 m) in the region (Ekman 2004). The reported ecology and description are a much better fit for *Lecanora phaeostigma*.
- Nephroma laevigatum** Ach. – Savicz (1925) reported this species; however, the specimen belongs to *Nephroma bellum* (Golubkov, pers. comm.).
- Ochrolechia androgyna** (Hoffm.) Arnold – This species was reported by Tomin (1956) and Gorbach (1962) who referred to Krawiec (1938). However, Krawiec found this species in the vicinities of Pohulanka village, which is in now part of Lithuania. The material cited by Golubkov (1987, 1992), Bely & Golubkov (2009a) and Bely (2010a, 2011a) contain variolaric and lichesterinic acids, and instead belong to *O. microstictoides*.
- Ochrolechia parella** (L.) A. Massal. – This species was reported by several authors. Gorbach (1962) reported corticolous material growing on *Carpinus betulus* bark. According to Kukwa (2011), the

- species is saxicolous. The specimen reported by Ges (1960) is sorediate, contains variolaric and licheterinic acids, and thus belongs to *O. microstictoides*. The species was also mentioned by Tomin (1939) referring to Savicz without a specific citation of a source. However, the species was not located in any of Savicz's published contributions.
- Ochrolechia turneri** (Sw.) Hasselrot – This species was reported by Makarevich (1971c) and Gorbach (1973). The material instead refers to *O. microstictoides* and *O. turneri* should be excluded from the checklist pending further study.
- Pachnolepia pruinata** (Pers.) Frisch & G. Thor – This species was reported as *Arthonia impolita* (Ehrh.) Borr. by Tomin (1956) who referred to Bachmann and Bachmann (1920). However, the latter species was not mentioned by those authors.
- Parmelia submontana** Nádv. ex Hale – This species was erroneously reported for Belarus by Hawksworth et al. (2008). No specimen from Belarus has been found in H (Ahti, pers. comm.) and the species is excluded from the present checklist.
- Parmotrema chinense** (Osbeck) Hale & Ahti – Previous reports of this species were based on nomenclatural updates of *Parmelia perlata* (L.) Ach. (Tsuryskau & Khramchankova 2011a, Yurchenko 2011). However, the original reports belong to *Cetrelia* species and not to *P. chinense* (see Bely et al. 2011).
- Peltigera occidentalis** (Å.E. Dahl) Kristinsson – Yurchenko (2011) reported this species based on a specimen referred by Zavarzin to the *P. occidentalis-polydactyon* group. As the species was not mentioned by Golubkov and Zavarzin (2010) in the revision of Belarusian *Peltigera*, the authors seem not to have accepted earlier determination. Furthermore, the species typically grows in subalpine and alpine communities, and thus would be out of place in Belarus (Vitikainen 2007). The species is excluded from the present list pending further study.
- Peltigera venosa** (L.) Hoffm. – This species was reported by Yurchenko (2011) and Yatsyna and Merzhvinsky (2012). Yurchenko (2011) referred to the historical report by Jundzill (1830). However, that report cited no exact locality, and covered a large geographic area including modern Belarus, Lithuania, Poland and Ukraine. Thus it is unclear whether the species was really located in Belarus. Yatsyna & Merzhvinsky (2012) based their report on a nomenclatural update of *Lichen venosus* Gilib. *nom. illeg.* (Gilibert 1792). However, that name corresponds to *P. canina* and not *P. venosa*.
- Pertusaria glomerata** (Ach.) Schaer. – This is an arctic-alpine lichen, found in sites with a long-term snow cover (Nimis 2016). The report by Bachmann & Bachmann (1920) is doubtful (see Makarevich 1971a) and it is not included in the present checklist.
- Phaeographis dendritica** (Ach.) Müll. Arg. – This species was reported by Yurchenko (2011) and Yatsyna and Merzhvinsky (2012) based on a nomenclatural update of “*Platygramme dendritica*” in Jundzill (1830). However, that historical report cited no exact locality, and covered a large geographic area including modern Belarus, Lithuania, Poland and Ukraine. The species is excluded from the present list pending further study.
- Physconia leucoleiptes** (Tuck.) Essl. – This taxon was listed by Tsuryskau & Khramchankova (2010b) and Yurchenko (2011) based on historic reports of *Physcia leucoleiptes* (Tuck.) Lettau by Bachmann and Bachmann (1920) and Wyssotzky et al. (1925). However, *P. leucoleiptes* does not occur in Europe (Esslinger 2002) and is not included in the present checklist. Although the descriptions in Bachmann and Bachmann (1920) and Wyssotzky et al. (1925) are incomplete, the reports are provisionally listed under *P. deterosa* based on the fact they were described as having a black lower surface and white-pruinose upper cortex. The supporting specimens should be reexamined to confirm that this is the case.
- Physconia venusta** (Ach.) Poelt – This species was reported by Golubkov (1987, 1992, 2011, 2014a), Golubkov & Kobzar (2007) and Tsuryskau & Khramchankova (2007), but the specimens belong to *P. distorta*. Furthermore, the distribution of *P. venusta* is centered in the Mediterranean mountains (Nimis 2016).
- Protomicarea limosa** (Ach.) Hafellner – This species was reported by Yurchenko (2011) and Yatsyna and Merzhvinsky (2012) based on a nomenclatural update of *Lecidea limosa* Ach. in Jundzill (1830). However, that historical report cited no exact locality, and covered a large geographic area including modern Belarus, Lithuania, Poland and Ukraine. The species is excluded from the present list pending further study.

- Pseudosagedia borrieri** (Trevis.) Hafellner & Kalb – This species was reported by Yurchenko (2011) based on a nomenclatural update of *Verrucaria olivacea* Pers. which was reported by Jundzill (1830). However, that historical report cited no exact locality, and covered a large geographic area including modern Belarus, Lithuania, Poland and Ukraine. The species is excluded from the present list pending further study.
- Pyrenula dermatodes** (Borrer) Schaer. – This species was erroneously reported by Oksner (1956) and Makarevich (1977d). The reports should be treated as *P. nitidella* (Flörke ex Schaer.) Müll. Arg. following Golubkov (1987).
- Ramalina obtusata** (Arnold) Bitter – Golubkov (1992) reported this species, but the specimens belong to *R. baltica*. The report of Yatsyna (2016c) also needs critical revision (see Yatsyna 2016b). *Ramalina obtusata* is excluded from the present checklist pending further study.
- Ramalina pulvinata** (Anzi) Jatta – This species was reported by Yatsyna and Merzhvinsky (2012) based on a reference to historical report by Kreyer (1913). *Ramalina pulvinata* is a synonym of *R. breviuscula* (Nyl.) Nyl., which is mainly a Mediterranean saxicolous species (Nimis 2016). The description provided by Kreyer (1913) fits *R. pollinaria* and the report almost certainly corresponds to that species.
- Rhizocarpon eupetraeoides** (Nyl.) Blomb. & Forssell – This species was reported by Novruzov (1990) without specific information and the species was not been confirmed as occurring in Belarus in a recent revision of the genus (Matwiejuk & Golubkov 2012). It is excluded from the list here.
- Rhizocarpon eupetraeum** (Nyl.) Arnold – This species was reported by Oksner (1968) without any specific information. The species was not been confirmed for Belarus in a recent revision of the genus (Matwiejuk & Golubkov 2012). It is excluded from the list here.
- Rhizocarpon umbilicatum** (Ramond) Flagey – Oksner (1968) reported this species, but the identification for Belarus has been questioned, and therefore it seems premature to accept this species as occurring in the region.
- Ricasolia amplissima** (Scop.) De Not. – This species was reported as *Lobaria amplissima* (Scop.) Forssell by Yurchenko (2011) based on an encyclopedia entry (Shamjakin 1984). The entry does not include a Latin name and instead refers to *L. scrobiculata*.
- Rinodina archaea** (Ach.) Arnold – This species was erroneously reported by Yatsyna & Merzhvinsky (2012), who cited Kreyer (1913: 372). However, the species does not appear to have been cited in the latter publication.
- Rinodina turfacea** (Wahlenb.) Th. Fr. – The use of this name in Belarus derives from *R. turfacea* var. *nuda* Th. Fr. f. *minor* Kreyer that was described by Kreyer (1913). However, this taxon apparently does not correspond to *R. turfacea* (e.g. Kotlov 2008, Sheard 2004) as it has dark thallus, small ascospores (13–21 × 7.6–11.7 µm) and grows on soil.
- Rinodina vezdae** H. Mayrhofer – This species was reported by Kotlov (2008) without specific information on its provenance and ecology. No specimen from Belarus has been found in LE (Gagarina, pers. comm.) and the species is excluded from the present list pending further study.
- Schismatomma graphidioides** (Leight.) Zahlbr. – This species was reported as *Lithographa graphidioides* (Cromb.) Imshaug ex Coppins & Fryday based on an incorrect nomenclatural update of *S. pericleum* by Golubkov (2011).
- Sclerophora amabilis** (Tibell) Tibell – The report by Yatsyna (2015b) from a manor park in the Minsk region is likely erroneous (see Yatsyna 2016a).
- Sphaerophorus fragilis** (L.) Pers. – This taxon was reported Yurchenko (2011), who cited Meier (1901). However, the species has arctic-alpine to boreal-montane distribution (Nimis 2016) and use of *Lichen fragilis* L. by Meier almost certainly refers to a different species.
- Staurothele clopima** (Wahlenb.) Th. Fr. – It is likely that the report of this species by Yatsyna (2015d) from the Grodno fortress was erroneous as that species was not cited in the latter publication (Yatsyna 2016c). According to Nimis (2016), the species is mainly restricted to mountainous areas.
- Trapeliopsis glaucolepidea** (Nyl.) Gotth. Schneid. – This species was reported by Yatsyna (2014c) without specific information as to the provenance and ecology. It was also not included in the latest summary of new Belarusian reports (Yatsyna & Motiejūnaite 2015). As such, the report is considered questionable and excluded from the present list pending further study.

- Usnea cavernosa** Tuck. – This species was reported by Golubkov and Kobzar (2005), who cited Krawiec (1938). However, Krawiec reported the species from the vicinity of Białowieża village which is now in Poland.
- Vahliella leucophaea** (Vahl) P.M. Jørg. – This species was reported as *Fuscopannaria leucophaea* (Vahl) P.M. Jørg. by Yurchenko (2011) based on historical reports by Gilibert (1781) and Jundzill (1830). However, that name was not mentioned by Gilibert. Further, Jundzill cited no exact locality, and covered a large geographic area including modern Belarus, Lithuania, Poland and Ukraine. The species is excluded from the present list pending further study.
- Varicellaria velata** (Turner) Schmitt & Lumbsch – This species was reported by Bachmann and Bachmann (1920) as *Pertusaria velata* (Turner) Nyl. However, the occurrence of this oceanic species in Belarus is doubtful (see also, Makarevich 1971a) and the report probably refers to another species.
- Verrucaria sylvana** Kreyer – This was described as a new species by Kreyer (1913). However, the description of *V. sylvana* is very short and it is not possible to establish its identity with certainty. Based on the description, the name could apply to several species. Furthermore, the reported variation in ascospore width is larger than is typical for a species of *Verrucaria* (Pykälä, pers. comm.). Therefore, the identity of *V. sylvana* requires further study and the name is considered as *nomen dubium* until type material is studied.
- Verrucaria viridula** (Schrader) Ach. – This species was reported as *V. papillosa* Ach. by Kopachevskaja (1977) based on an incorrect nomenclatural update of a historical report of *V. papillosa* Flörke (Bachmann & Bachmann 1920). However, the latter name corresponds to *V. floerkeana*.
- Xanthoparmelia pokornyi** (Körb.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch – This species was erroneously reported for Belarus by Hawksworth et al. (2008). No specimen from Belarus has been found in H (Ahti, pers. comm.) and the species is excluded from the present checklist.
- Xanthoparmelia stenophylla** (Ach.) Ahti & D. Hawksw. – This species was reported by Golubkov (1992), Golubkov et al. (2007b) and Bely and Golubkov (2012), but the specimens were reidentified as *X. angustiphylla* by TLC during a recent revision (Tsurukau et al. 2018). The report by Yatsyna (2009e) was not accompanied by chemical data and therefore should be reexamined before being included.

NOMENCLATURAL INDEX TO SYNONYMS AND HISTORICAL NAMES

- Acarospora discreta Ach. = Acarospora veronensis
Acarospora fuscata (Schrader) Th. Fr. var. rufescens (Turner) Th. Fr. = Acarospora fuscata
Acarospora glebosa (Flot.) Körb. = Acarospora oligospora
Acarospora heppii Nägeli ex Körb. = Caeruleum heppii
Acrocordia alba (Schrader) B. de Lesd. = Acrocordia gemmata
Acrocordia sphaeroides (Wallr.) Arnold = Acrocordia gemmata
Allarthonia patellulata (Nyl.) Zahlbr. = Arthonia patellulata
Alectoria cana (Ach.) Leight. = Bryoria capillaris
Alectoria chalybeiformis (L.) Röhl. = Bryoria fuscescens
Alectoria crispa Motyka = Bryoria fuscescens
Alectoria haynaldii Gyeln. sensu Gorbach = Bryoria capillaris
Alectoria implexa auct. = Bryoria implexa
Alectoria jubata (L.) Ach. – name can be applied to various pendent species of Bryoria (see Brodo & Hawksworth 1977, Esslinger 2016)
Alectoria mirabilis Motyka = Bryoria implexa
Alectoria motycii Bystrek nom. inval. = Bryoria implexa
Alectoria motykana Bystrek = Bryoria implexa
Alectoria nidulifera Norrl. = Bryoria furcellata
Alectoria setacea (Ach.) Motyka = Bryoria capillaris
Alectoria setacea (Ach.) Motyka var. tominii Bystrek = Bryoria capillaris
Alectoria thrausta Ach. = Ramalina thrausta
Anaptychia ciliaris (L.) Körb. var. vulgaris Körb. = Anaptychia ciliaris
Anaptychia ciliaris (L.) Körb. f. verrucosa (Ach.) Boistel = Anaptychia ciliaris
Anaptychia speciosa (Wulfen) A. Massal. = Heterodermia speciosa

Arthonia byssacea (Weigel) Almq. = *Inoderma byssaceum*
Arthonia cinnabarina (DC.) Wallr. = *Coniocarpon cinnabarinum*
Arthonia leucopellaea (Ach.) Almq. = *Felipes leucopellaeus*
Arthonia lurida Ach. nom. rej. = *Arthonia spadicea*
Arthonia populina A. Massal. = *Arthonia punctiformis*
Arthonia radiata (Pers.) Th. Fr. f. *swartziana* Ach. = *Arthonia radiata*
Arthonia radiata (Pers.) Th. Fr. f. *astroidea* Ach. = *Arthonia radiata*
Arthonia radiata (Pers.) Ach. var. *astroidea* Ach. = *Arthonia radiata*
Arthonia ruana A. Massal. = *Arthothelium ruanum*
Arthonia ruanum nom. illeg. = *Arthothelium ruanum*
Arthonia tumidula Ach. = *Arthonia cinnabarina*
Arthopyrenia alba (Schrad.) Zahlbr. = *Acrocordia gemmata*
+*Arthopyrenia analepta* (Ach.) A. Massal. var. *punctiformis* (Schränk.) Kreyer = *Naetrocymbe punctiformis*
#*Arthopyrenia atomaria* (Ach.) Müll. Arg. = *Naetrocymbe punctiformis*
#*Arthopyrenia punctiformis* (Ach.) Arnold = *Naetrocymbe punctiformis*
Arthopyrenia punctiformis (Ach.) Arnold var. *atomaria* Ach. = *Leptorhaphis atomaria*
Arthopyrenia spaeroides (Wallr.) Zahlbr. = *Acrocordia gemmata*
Arthrospora populorum A. Massal. nom. illeg. = *Arthrosporum populorum*
Arthrosporum accline (Flot.) Körb. = *Arthrosporum populorum*
Aspicilia calcarea (L.) Mudd. = *Circinaria calcarea*
Aspicilia contorta (Hoffm.) Kremp. = *Circinaria contorta*
Aspicilia gibbosa (Ach.) Körb. = *Circinaria gibbosa*
Aspicilia moenium (Vain.) G. Thor & Timdal. = *Acarospora moenium*
Aspicilia mutabilis (Ach.) Körb. = *Megaspora verrucosa*
Aspicilia sphaerothallina (J. Steiner) Szatala = *Circinaria sphaerothallina*

Bacidia abbrevians (Nyl.) Th. Fr. = *Bacidia igniarii*
Bacidia acerina (Pers.) Arnold = *Bacidia polychroa*
Bacidia albescens (Arnold) Zwakch. = *Bacidina phacodes*
Bacidia arnoldiana Körb. = *Bacidina arnoldiana*
Bacidia assulata (Körb.) Vězda = *Bacidina assulata*
Bacidia bacillifera (Nyl.) Elenk. = *Bacidia circumspecta*
Bacidia bacillifera (Nyl.) Elenk. var. *abbrevians* Nyl. = *Bacidia igniarii*
Bacidia beckhausii Körb. = *Biatora beckhausii*
Bacidia cinerea (Schaer.) Körb. = *Micarea cinerea*
Bacidia chlorococca (Graewe ex Stenh.) Lettau = *Scoliciosporum chlorococcum*
Bacidia corticola (Anzi) Dalla Torre & Sarnth. = *Scoliciosporum umbrinum*
Bacidia delicata (Leight.) Coppins = *Bacidina delicata*
Bacidia effusa (Sm.) Arnold = *Bacidina assulata*
Bacidia endoleuca (Nyl.) Kickx. = *Bacidia laurocerasi*
Bacidia fuscorubella (Hoffm.) Bausch = *Bacidia polychroa*
Bacidia fuscorubella (Hoffm.) Arnold var. *phaea* (Stizenb.) Th. Fr. = *Bacidia polychroa*
Bacidia globulosa (Flörke) Hafellner & V. Wirth = *Biatora globulosa*
Bacidia hegetschweileri (Hepp) Vain. = *Bacidia subincompta*
Bacidia hypnophila (Ach.) Zahlbr. = *Bilimbia sabuletorum*
Bacidia intermedia Arnold = *Bacidina assulata*
Bacidia inundata (Fr.) Körb. = *Bacidina inundata*
Bacidia luteola (Schrad.) Mudd. = *Bacidia rubella*
Bacidia minuscula Anzi = *Biatora beckhausii*
Bacidia muscorum (Sw.) Arnold f. *viridescens* (A. Massal.) Hepp = *Bacidia bagliettoana*
Bacidia naegelii (Hepp) Zahlbr. = *Lecania naegelii*
Bacidia nitschkeana (J. Lahm) Zahlbr. = *Micarea nitschkeana*
Bacidia phacodes Körb. = *Bacidina phacodes*
Bacidia populorum (A. Massal.) Trevis. = *Arthrosporum populorum*
Bacidia sabuletorum Flörke = *Bilimbia sabuletorum*

Bacidia sphaeroides (Dicks.) Zahlbr. = *Mycobilimbia pilularis*
Bacidia umbrina (Ach.) Branth & Rostrup. = *Scoliciosporum umbrinum*
Baeomyces roseus Pers. = *Dibaeis baeomyces*
Baeomyces byssoides (L.) Schaer. f. *sessilis* Nyl. = *Baeomyces rufus*
Biatora atrofusca Flot. ex Hepp = *Bryobilimbia hypnorum*
Biatora atroviridis (Arnold) Hellb. = *Biatora ocelliformis*
Biatora carneoalbida (Müll. Arg.) Coppins = *Mycobilimbia carneoalbida*
Biatora coarctata (Sm.) Arnold f. *elachista* (Ach.) Th. Fr. = *Trapelia involuta*
Biatora coarctata (Sm.) Arnold var. *elachista* (Ach.) Th. Fr. = *Trapelia involuta*
Biatora flexuosa Fr. = *Trapeliopsis flexuosa*
Biatora granulosa (Ehrh.) Flot. = *Trapeliopsis granulosa*
Biatora granulosa (Flörke) Flot. var. *escharoides* (Hoffm.) Arnold = *Trapeliopsis gelatinosa*
Biatora humosa (Ehrh. ex Hoffm.) Arnold = *Placynthiella uliginosa*
Biatora monticola (Schaer.) Hepp = *Clauzadea monticola*
Biatora obscurella (Sommrft.) Arnold = *Lecanora phaeostigma*
Biatora sylvana Körb. = *Biatora globulosa*
Biatora symmicta (Ach.) A. Massal. = *Palicella filamentosa*
Biatora turgidula (Fr.) Nyl. = *Lecidea turgidula*
Biatora uliginosa (Schräd.) Fr. = *Placynthiella uliginosa*
Biatora uliginosa (Schräd.) Fr. f. *fuliginea* (Ach.) Fr. = *Placynthiella uliginosa*
Biatora viridescens Fr. = *Trapeliopsis viridescens*
Biatorella moriformis (Ach.) Th. Fr. = *Strangospora moriformis*
Biatorella pruinosa (Sm.) Mudd. = *Sarcogyne regularis*
+*Biatorella resinae* Mudd. = *Sarea resinae*
Biatorina atropurpurea (Schaer.) A. Massal. = *Catinaria atropurpurea*
Biatorina bouteillei (Desm.) Arnold = *Fellhanera bouteillei*
Biatorina prasina (Fr.) Stein var. *laeta* Th. Fr. = misidentification
Bilimbia cinerea (Schaer.) Körb. = *Micarea cinerea*
Bilimbia coprodes Körb. = *Bacidia coprodes*
Bilimbia hypnophila (Ach.) Th. Fr. = *Bilimbia sabuletorum*
Bilimbia hypnophila (Ach.) Th. Fr. f. *ludens* Stizenb. = *Bilimbia sabuletorum*
Bilimbia naegelii (Hepp) Anzi = *Lecania naegelii*
Bilimbia nitschkeana J. Lahm = *Micarea nitschkeana*
Bilimbia sphaeroides (Dicks.) Th. Fr. = *Mycobilimbia carneoalbida*
Bilimbia trachona (Ach.) Trevis. = *Bacidia trachona*
Blastenia obscurella J. Lahm = *Caloplaca obscurella*
Bryopogon chalybeiforme (L.) Elenk. = *Bryoria fuscescens*
Bryopogon implexum (Hoffm.) Elenk. = *Bryoria implexa*
Bryopogon implexum (Hoffm.) Elenk. f. *capillaris* Ach. = *Bryoria capillaris*
Bryopogon jubatum (L.) – name can be applied to various pendent species of *Bryoria* (see Brodo & Hawksworth 1977, Esslinger 2016)
Bryoria chalybeiformis (L.) Brodo & D. Hawksw. = *Bryoria fuscescens*
Bryoria crispa (Motyka) Bystrek = *Bryoria fuscescens*
Bryoria jubata (L.) Bystrek – name can be applied to various pendent species of *Bryoria*
Bryoria mirabilis (Motyka) Bystrek = *Bryoria implexa*
Bryoria motykana (Bystrek) Bystrek = *Bryoria implexa*
Bryoria osteola (Gyeln.) Brodo & D. Hawksw. = *Bryoria implexa*
Bryoria pseudofuscescens (Gyeln.) Brodo & D. Hawksw. = *Bryoria implexa*
Bryoria setacea (Ach.) Brodo & D. Hawksw. = *Bryoria capillaris*
Buellia alboatra (Hoffm.) Th. Fr. = *Diplotomma alboatrum*
Buellia epipolia (Ach.) Mong. = *Diplotomma alboatrum*
Buellia insignis (Nägeli ex Hepp) Th. Fr. = *Tetramelas insignis*
Buellia lauri-cassiae (Fée) Müll. Arg. = Belarusian reports probably refer to *Buellia geophila*
Buellia margaritacea (Sommerf.) Lynge = *Diplotomma alboatrum*
Buellia myriocarpa (DC.) De Not. = *Amandinea punctata*
Buellia parasema De Not. = *Buellia disciformis*

Buellia parasema (Ach.) Th. Fr. var. *disciformis* Th. Fr. = *Buellia disciformis*
Buellia parasema (Ach.) Th. Fr. var. *microcarpa* Schaer. = *Buellia disciformis*
Buellia parasema (Ach.) Th. Fr. var. *triphragmia* (Nyl.) Th. Fr. = *Buellia geophila*
Buellia punctata (Hoffm.) A. Massal. = *Amandinea punctata*
Buellia punctiformis (Hoffm.) A. Massal. = *Amandinea punctata*
Buellia punctiformis (Hoffm.) A. Massal. f. *ochroleuca* Kreyer = *Amandinea punctata*
Buellia stigmata Körb. = *Amandinea punctata*
Byssoloma rotuliforme (Müll. Arg.) R. Sant. = *Byssoloma subdiscordans*
Byssoloma tricholomum (Mont.) Zahlbr. = *Byssoloma subdiscordans*

#Calicium floerkei Zahlbr. = *Chaenothecopsis pusilla*
Calicium hyperellum (Ach.) Ach. = *Calicium viride*
#Calicium italicum (Sacc.) Gola = *Chaenothecopsis pusilla*
Calicium minutum Körb. = *Calicium abietinum*
#Calicium pusillum Flörke = *Chaenothecopsis pusilla*
+Calicium parietinum Ach. = *Mycocalicium subtile*
Calicium sphaerocephalum (L.) Ach. = *Calicium salicinum*
Calicium subquercinum Asahina = *Calicium lenticulare*
+Calicium subtile Pers. = *Mycocalicium subtile*
Calogaya decipiens (Arnold) Arup, Frödén & Söchting = *Calogaya pusilla*
Caloplaca aurantia (Pers.) Hellb. = *Variospora aurantia*
Caloplaca cerina (Ach.) Th. Fr. var. *ehrhartii* (Schaer.) Th. Fr. = *Caloplaca cerina*
Caloplaca cerinella (Nyl.) Flagey = *Athallia cerinella*
Caloplaca cerinelloides (Erichsen) Poelt = *Athallia cerinelloides*
Caloplaca citrina (Hoffm.) Th. Fr. = *Flavoplaca citrina*
Caloplaca decipiens (Arnold) Blomb. & Forssell = *Calogaya pusilla*
Caloplaca elegans (Link) Th. Fr. = *Rusavskia elegans*
Caloplaca ferruginea (Huds.) Th. Fr. = *Blastenia ferruginea*
Caloplaca flavocitrina (Nyl.) H. Olivier = *Flavoplaca flavocitrina*
Caloplaca flavorubescens (Huds.) J.R. Laundon = *Gyalolechia flavorubescens*
Caloplaca flavovirescens (Wulfen) Dalla Torre & Sarnth. = *Gyalolechia flavovirescens*
Caloplaca herbidella (Arnold) H. Magn. = *Blastenia herbidella*
Caloplaca holocarpa (Hoffm.) A.E. Wade sensu auct. Belarus = *Athallia pyracea* s. lat.
Caloplaca lobulata (Flörke) Hellb. = *Calogaya lobulata*
Caloplaca luteoalba (Turner) Th. Fr. = *Cerothallia luteoalba*, but most probably misidentification
Caloplaca phlogina (Ach.) Flagey = *Polycauliona phlogina*
Caloplaca pyracea (Ach.) Zwackh = *Athallia pyracea*
Candelariella cerinella (Flörke) Elenk. = *Candelariella aurella*
Candelariella vitellina (Ehrh.) Elenk. var. *genuina* Th. Fr. = *Candelariella vitellina*
Candelariella vitellina (Ehrh.) Elenk. var. *xanthostigma* (Pers.) Th. Fr. = *Candelariella xanthostigma*
Catapyrenium squamulosum (Ach.) Breuss = *Placidium squamulosum*
Catillaria atropurpurea (Schaer.) Th. Fr. = *Catinaria atropurpurea*
Catillaria bouteillei (Desm.) Zahlbr. = *Fellhanera bouteillei*
Catillaria denigrata (Fr.) Held. = *Micarea denigrata*
Catillaria globulosa (Flörke) Th. Fr. = *Biatora globulosa*
Catillaria graniformis (K.G. Hagen) Vain. = *Cliostomum corrugatum*
Catillaria griffithii (Sm.) Malme = *Cliostomum griffithii*
Catillaria synothea (Ach.) Th. Fr. = *Micarea denigrata*
Catillaria prasina (Fr.) Th. Fr. = *Micarea prasina*
Catocarpon badioatrum (Flörke) Körb. var. *vulgaris* Körb. = *Rhizocarpon badioatrum*
Cetraria aleurites (Ach.) Th. Fr. = *Imshaugia aleurites*
Cetraria caperata Vain. = *Cetraria pinastri*
Cetraria chlorophylla (Willd.) Vain. = *Nephromopsis chlorophylla*
Cetraria crispa (Ach.) Nyl. = *Cetraria ericetorum*
Cetraria ericetorum Opiz. f. *vagans* (Mereschk.) Rass. = *Cetraria ericetorum*
Cetraria glauca (L.) Ach. = *Platismatia glauca*

Cetraria glauca (L.) Ach. f. *coralloidea* Wallr. = *Platismatia glauca*
Cetraria glauca (L.) Ach. f. *ulophylla* Wallr. = *Platismatia glauca*
Cetraria islandica (L.) Ach. f. *crispa* Ach. = *Cetraria ericetorum*
Cetraria islandica (L.) Ach. f. *isidioidea* Rass. = *Cetraria islandica*
Cetraria islandica (L.) Ach. f. *maculata* (Vain.) Savicz = *Cetraria islandica*
Cetraria islandica (L.) Ach. f. *platyna* Ach. = *Cetraria islandica*
Cetraria islandica (L.) Ach. f. *rigida* (Retz.) Savicz = *Cetraria islandica*
Cetraria islandica (L.) Ach. f. *sorediata* Arnold = *Cetraria islandica*
Cetraria islandica (L.) Ach. f. *subtubulosa* Fr. = *Cetraria ericetorum*
Cetraria islandica (L.) Ach. f. *vagans* Savicz = *Cetraria islandica*
Cetraria scutata auct. Belarus = *Nephromopsis chlorophylla*
Cetraria sepincola Ach. f. *rosulata* Th. Fr. = *Cetraria sepincola*
Cetraria tenuifolia Vain. = *Cetraria ericetorum*
Cetraria tenuifolia Vain f. *soralifera* Anders = *Cetraria ericetorum*
Chaenotheca aeruginosa (Turner) A. L. Sm. = *Chaenotheca stemonea*
Chaenotheca carthusiae (Harm.) Lettau = *Chaenotheca chlorella*
Chaenotheca melanophaea (Ach.) Zwackh = *Chaenotheca ferruginea*
Chaenotheca trichialis Hellb. f. *candelaris* Dalla Torre & Sarnth. = *Chrysothrix candelaris*
#Chaenothecopsis lignicola (Nádv.) A.F.W. Schmidt = *Chaenothecopsis pusiola*
Cladina alpestris (L.) Rabenh. = *Cladonia stellaris*
Cladina arbuscula (Wallr.) Hale & W.L. Culb. = *Cladonia arbuscula* ssp. *arbuscula*
Cladina mitis (Sandst.) Hale & W.L. Culb. = *Cladonia arbuscula* ssp. *mitis*
Cladina portentosa (Dufour) Follmann = *Cladonia portentosa*
Cladina rangiferina (L.) Harm. = *Cladonia rangiferina*
Cladina stellaris (Opiz) Brodo = *Cladonia stellaris*
Cladina tenuis (Flörke) Hale & W.L. Culb. = *Cladonia tenuis*
Cladonia alpestris (L.) Rabenh. = *Cladonia stellaris*
Cladonia amaurocraea (Flörke) Schaer. f. *amaurocraea* = *Cladonia amaurocraea*
Cladonia amaurocraea (Flörke) Schaer. f. *oxyceras* (Ach.) Vain. = *Cladonia amaurocraea*
Cladonia anomaea (Ach.) Ahti & P. James = *Cladonia ramulosa*
Cladonia arbuscula (Wallr.) Flot. f. *sphagnoides* (Flörke) H. Olivier = *Cladonia arbuscula*
Cladonia bacillaris (Ach.) Nyl. = *Cladonia macilenta* var. *bacillaris*
Cladonia bacillaris (Ach.) Nyl. var. *bacillaris* = *Cladonia macilenta* var. *bacillaris*
Cladonia bacillaris (Ach.) Nyl. var. *clavata* (Ach.) Vain. = *Cladonia macilenta* var. *bacillaris*
Cladonia botrytes (K.G. Hagen) Willd. f. *botrytes* = *Cladonia botrytes*
Cladonia carneola (Fr.) Fr. var. *scyphosa* Hepp = *Cladonia carneola*
Cladonia cariosa (Ach.) Spreng. f. *cariosa* = *Cladonia cariosa*
Cladonia cariosa (Ach.) Spreng. var. *corticata* Vain. = *Cladonia cariosa*
Cladonia cariosa (Ach.) Spreng. var. *cribrosa* (Wallr.) Vain. = *Cladonia cariosa*
Cladonia cenotea (Ach.) Schaer. f. *crossota* Ach. = *Cladonia cenotea*
Cladonia cenotea (Ach.) Schaer. var. *crossota* (Ach.) Nyl. = *Cladonia cenotea*
Cladonia cenotea (Ach.) Schaer. var. *exaltata* Nyl. = *Cladonia cenotea*
Cladonia cenotea (Ach.) Schaer. var. *viminalis* Flörke = *Cladonia cenotea*
Cladonia cenotea (Ach.) Schaer. f. *prolifera* Schaer. = *Cladonia cenotea*
Cladonia cervicornis (Ach.) Flot. ssp. *verticillata* (Hoffm.) Ahti = *Cladonia verticillata*
Cladonia ciliata Stirt. sensu auct. Belarus = *Cladonia tenuis*
Cladonia ciliata Stirt. var. *tenuis* (Flörke) Ahti = *Cladonia tenuis*
Cladonia ciliata Stirt. f. *flavicans* (Flörke) Ahti & De Priest = *Cladonia tenuis*
Cladonia coccifera (L.) Willd. var. *coccifera* = *Cladonia coccifera*
Cladonia coccifera (L.) Willd. var. *pleurota* (Flörke) Schaer. = *Cladonia pleurota*
Cladonia coccifera (L.) Willd. var. *stematina* (Ach.) Vain. f. *phyllocoma* Flörke = *Cladonia coccifera*
Cladonia coniocraea (Flörke) Spreng. f. *phyllostrata* (Flörke) Oksner = *Cladonia coniocraea*
Cladonia coniocraea (Flörke) Spreng. f. *pycnotheliza* (Nyl.) Vain. = *Cladonia coniocraea*
Cladonia cornuta (L.) Schaer. f. *cornuta* = *Cladonia cornuta*
Cladonia cornuta (L.) Schaer. f. *obtrusa* Küllh. = *Cladonia cornuta*
Cladonia cornuta (L.) Schaer. f. *phyllostoca* (Flörke) Arnold = *Cladonia cornuta*

Cladonia cornutoradiata (Coem.) Zopf = *Cladonia subulata*
Cladonia cornutoradiata (Coem.) Zopf f. *capreolata* (Flörke) Flot.
Cladonia cornutoradiata (Coem.) Zopf f. *radiata* (Schreb.) Coem. = *Cladonia subulata*
Cladonia cornutoradiata (Coem.) Zopf f. *subacuminata* Vain.
Cladonia cornutoradiata (Coem.) Zopf f. *subulata* (L.) Vain. = *Cladonia subulata*
Cladonia crispata (Ach.) Flot. var. *cetrariiformis* (Delise) Vain. = *Cladonia crispata*
Cladonia crispata (Ach.) Flot. var. *crispata* = *Cladonia crispata*
Cladonia crispata (Ach.) Flot. var. *dilacerata* (Schaer.) Malbr. = *Cladonia crispata*
Cladonia crispata (Ach.) Flot. var. *divulsa* (Delise) Arnold = *Cladonia crispata*
Cladonia crispata (Ach.) Flot. var. *elegans* (Delise) Vain. = *Cladonia crispata*
Cladonia crispata (Ach.) Flot. var. *gracilescens* (Rabenh.) Vain. = *Cladonia crispata*
Cladonia crispata (Ach.) Flot. var. *infundibulifera* (Schaer.) Vain. = *Cladonia crispata*
Cladonia deformis (L.) Hoffm. f. *crenulata* (Ach.) Nyl. = *Cladonia deformis*
Cladonia deformis (L.) Hoffm. f. *deformis* = *Cladonia deformis*
Cladonia deformis (L.) Hoffm. f. *gonecha* Ach. = *Cladonia sulphurina*
Cladonia degenerans (Flörke) Spreng. = *Cladonia phyllophora*
Cladonia degenerans (Flörke) Spreng. var. *cladomorpha* (Ach.) Vain. = *Cladonia phyllophora*
Cladonia degenerans (Flörke) Spreng. var. *dilacerata* Schaer. = *Cladonia phyllophora*
Cladonia degenerans (Flörke) Spreng. var. *phyllophora* (Ehrh.) Flörke = *Cladonia phyllophora*
Cladonia degenerans (Flörke) Spreng. f. *cladomorpha* (Ach.) Vain. = *Cladonia phyllophora*
Cladonia degenerans (Flörke) Spreng. f. *dilacerata* Schaer. = *Cladonia phyllophora*
Cladonia degenerans (Flörke) Spreng. f. *euphorea* (Ach.) Flörke = *Cladonia phyllophora*
Cladonia degenerans (Flörke) Spreng. f. *phyllophora* (Ehrh.) Flörke = *Cladonia phyllophora*
Cladonia delicata (Ehrh.) Flörke = *Cladonia parasitica*
Cladonia delicata (Ehrh.) Flörke f. *quercina* (Pers.) Vain. = *Cladonia parasitica*
Cladonia digitata (L.) Hoffm. f. *brachytes* (Ach.) Vain. = *Cladonia digitata*
Cladonia digitata (L.) Hoffm. f. *ceruchoides* Vain. = *Cladonia digitata*
Cladonia digitata (L.) Hoffm. f. *monstrosa* (Ach.) Vain. = *Cladonia digitata*
Cladonia fimbriata (L.) Fr. f. *exillis* (Hoffm.) Zahlbr. = *Cladonia fimbriata*
Cladonia fimbriata (L.) Fr. f. *fimbriata* = *Cladonia fimbriata*
Cladonia fimbriata (L.) Fr. f. *major* (K.G. Hagen) Vain. = *Cladonia fimbriata*
Cladonia fimbriata (L.) Fr. var. *apolepta* (Ach.) Vain. = *Cladonia coniocraea*
Cladonia fimbriata (L.) Fr. var. *apolepta* (Ach.) Vain. f. *coniocraea* Flörke = *Cladonia coniocraea*
Cladonia fimbriata (L.) Fr. var. *apolepta* (Ach.) Vain. f. *ochrochlora* (Flörke) Vain. = *Cladonia coniocraea*
Cladonia fimbriata (L.) Fr. var. *apolepta* (Ach.) Vain. f. *epiphylla* (Flot.) Kreyer = *Cladonia coniocraea*
Cladonia fimbriata (L.) Fr. var. *cornutoradiata* Coem. f. *olata* (Flörke) Flot. = *Cladonia subulata*
Cladonia fimbriata (L.) Fr. var. *cornutoradiata* Coem. f. *radiata* (Schreb.) Coem. = *Cladonia subulata*
Cladonia fimbriata (L.) Fr. var. *cornutoradiata* Coem. f. *subacuminata* Vain. = *Cladonia rei*
Cladonia fimbriata (L.) Fr. var. *cornutoradiata* Coem. f. *subulata* (L.) Vain. = *Cladonia subulata*
Cladonia fimbriata (L.) Fr. var. *ochrochlora* (Flörke) Vain. = *Cladonia coniocraea*
Cladonia fimbriata (L.) Fr. var. *prolifera* (Retz.) A. Massal. = *Cladonia chlorophaea* s. lat.
Cladonia fimbriata (L.) Fr. var. *simplex* (Weiss) Flot. = *Cladonia fimbriata*
Cladonia fimbriata (L.) Fr. var. *simplex* (Weiss) Flot. f. *epistelis* Kreyer = *Cladonia fimbriata*
Cladonia fimbriata (L.) Fr. var. *simplex* (Weiss) Flot. f. *major* (K.G. Hagen) Vain. = *Cladonia fimbriata*
Cladonia fimbriata (L.) Fr. var. *simplex* (Weiss) Flot. f. *minor* (K.G. Hagen) Vain. = *Cladonia fimbriata*
Cladonia flabelliformis (Flörke) Vain. f. *ochracea* Aigret = *Cladonia polydactyla*
Cladonia flabelliformis (Flörke) Vain. f. *tubaeformis* Mudd. = *Cladonia polydactyla*
Cladonia floerkeana (Fr.) Sommerf. f. *epistelis* Oksner = *Cladonia floerkeana*
Cladonia floerkeana (Fr.) Sommerf. var. *carcata* (Ach.) Nyl. = *Cladonia floerkeana*
Cladonia floerkeana (Fr.) Sommerf. var. *chloroides* (Flörke) Vain. = *Cladonia floerkeana*
Cladonia floerkeana (Fr.) Sommerf. var. *floerkeana* = *Cladonia floerkeana*
Cladonia floerkeana (Fr.) Sommerf. var. *intermedia* Hepp = *Cladonia floerkeana*
Cladonia furcata (Huds.) Schrad. var. *furcata* (Hoffm.) Flörke = *Cladonia furcata* ssp. *furcata*
Cladonia furcata (Huds.) Schrad. var. *palamaea* (Ach.) Nyl. = *Cladonia furcata* ssp. *subrangiformis*
Cladonia furcata (Huds.) Schrad. var. *pinnata* (Flörke) Vain. = *Cladonia furcata* ssp. *furcata*
Cladonia furcata (Huds.) Schrad. var. *pinnata* (Flörke) Vain. f. *foliosa* Del. = *Cladonia furcata* ssp. *furcata*

Cladonia furcata (Huds.) Schrad. var. *racemosa* (Hoffm.) Flörke = *Cladonia furcata* ssp. *furcata*
Cladonia furcata (Huds.) Schrad. var. *racemosa* (Hoffm.) Flörke f. *corymbosa* (Ach.) Nyl. = *Cladonia furcata* ssp. *furcata*
Cladonia furcata (Huds.) Schrad. var. *racemosa* (Hoffm.) Flörke f. *furcatosubulata* Hoffm. = *Cladonia furcata* ssp. *furcata*
Cladonia gonecha (Ach.) Asahina = *Cladonia sulphurina*
Cladonia gracilis (L.) Willd. var. *chordalis* (Flörke) Schaer. = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. var. *chordalis* (Flörke) Schaer. f. *leucochlora* Flörke = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. var. *dilacerata* Flörke = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. var. *dilatata* (Hoffm.) Vain. = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. var. *elongata* (Jacq.) Flörke = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. var. *elongata* (Jacq.) Flörke f. *hugueninii* (Del.) Vain. = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. var. *elongata* (Jacq.) Flörke f. *subdilacerata* Vain. = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. var. *elongata* (Jacq.) Flörke f. *phyllophora* Rabenh. = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. var. *gracilis* = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. f. *anthocephala* Flörke = *Cladonia gracilis*
Cladonia gracilis (L.) Willd. f. *mesothera* Wallr. = *Cladonia gracilis*
Cladonia impexa Harm. = *Cladonia portentosa*
Cladonia impexa Harm. f. *condensata* (Flörke) Coem. = *Cladonia portentosa*
Cladonia impexa Harm. f. *impexa* = *Cladonia portentosa*
Cladonia impexa Harm. f. *laxiuscula* (Del.) Vain. = *Cladonia implexa*
Cladonia impexa Harm. f. *portentosa* (Duf.) Harm. = *Cladonia portentosa*
Cladonia incrassata Flörke f. *epiphylla* Fr. = *Cladonia incrassata*
Cladonia incrassata Flörke f. *incrassata* = *Cladonia incrassata*
Cladonia laxiuscula (Del.) Sandst. = *Cladonia portentosa*
Cladonia macilenta Hoffm. ssp. *floerkeana* (Fr.) V. Wirth = *Cladonia floerkeana*
Cladonia macilenta Hoffm. var. *macilenta* = *Cladonia macilenta*
Cladonia macilenta Hoffm. var. *ostreata* Nyl. = *Cladonia macilenta*
Cladonia macilenta Hoffm. var. *styracella* (Ach.) Vain. = *Cladonia macilenta*
Cladonia macrophylla (Schaer.) Stenh. f. *mougeotii* (Delise ex Vain.) J.W. Thomson = *Cladonia macrophylla*
Cladonia major (K.G. Hagen) Sandst. = *Cladonia fimbriata*
Cladonia mitis Sandst. = *Cladonia arbuscula* ssp. *mitis*
Cladonia nemoxyna (Ach.) Nyl. = *Cladonia rei*
Cladonia ochrochlora Flörke = *Cladonia coniocraea*
Cladonia papillaria (Ehrh.) Hoffm. = *Pycnothelia papillaria*
Cladonia pityrea (Flörke) Fr. = *Cladonia ramulosa*
Cladonia pityrea (Flörke) Fr. f. *crassiuscula* (Coem.) Vain. = *Cladonia ramulosa*
Cladonia pleurota (Flörke) Schaer. f. *phyllocoma* Flörke = *Cladonia pleurota*
Cladonia pyxidata (L.) Hoffm. ssp. *chlorophaea* (Sommerf.) V. Wirth = *Cladonia chlorophaea*
Cladonia pyxidata (L.) Hoffm. ssp. *pocillum* (Ach.) Å.E. Dahl = *Cladonia pocillum*
Cladonia pyxidata (L.) Fr. var. *chlorophaea* Flörke = *Cladonia chlorophaea*
Cladonia pyxidata (L.) Fr. var. *neglecta* (Flörke) A. Massal. = an uncertain species from *Cladonia chlorophaea* agg.
Cladonia pyxidata (L.) Th. Fr. var. *neglecta* (Flörke) A. Massal. f. *lophyra* Ach. = an uncertain species from *Cladonia chlorophaea* agg.
Cladonia pyxidata (L.) Hoffm. var. *pyxidata* = *Cladonia pyxidata*
Cladonia rangiferina (L.) F.H. Wigg. f. *tecticola* Savicz = *Cladonia rangiferina*
Cladonia rei Schaer. f. *phyllocephala* Arnold = *Cladonia rei*
Cladonia squamosa (Scop.) Hoffm. var. *denticollis* (Hoffm.) Flörke = *Cladonia squamosa*
Cladonia squamosa (Scop.) Hoffm. var. *denticollis* (Hoffm.) Flörke f. *squamosissima* (Flörke) Vain. = *Cladonia squamosa*
Cladonia squamosa (Scop.) Hoffm. var. *multibrachiata* Flörke f. *turfacea* Rehm = *Cladonia squamosa*
Cladonia squamosa (Scop.) Hoffm. var. *multibrachiata* Flörke f. *pityrea* (Arnold) Vain. = *Cladonia squamosa*
Cladonia squamosa (Scop.) Hoffm. var. *multibrachiata* Flörke f. *phyllocoma* Vain. = *Cladonia squamosa*

Cladonia squamosa (Scop.) Hoffm. var. *multibrachiata* Flörke f. *pseudocrispata* Sandst. = *Cladonia squamosa*
Cladonia squamosa (Scop.) Hoffm. var. *muricella* (Del.) Vain. = *Cladonia squamosa*
Cladonia squamosa (Scop.) Hoffm. var. *phyllocoma* Rabenh. = *Cladonia squamosa*
Cladonia squamosa (Scop.) Hoffm. var. *squamosa* = *Cladonia squamosa*
Cladonia subrangiformis Sandst. = *Cladonia furcata* ssp. *subrangiformis*
Cladonia subulata (L.) F.H. Wigg. f. *furcellata* (Hoffm.) J.C. Wei = *Cladonia subulata*
Cladonia sylvatica (L.) Hoffm. = *Cladonia arbuscula* ssp. *arbuscula*
Cladonia sylvatica (L.) Hoffm. var. *sylvestris* Oeder = *Cladonia arbuscula* ssp. *arbuscula*
Cladonia sylvatica (L.) Hoffm. var. *sylvestris* Oeder f. *pumila* (Ach.) Rabenh. = *Cladonia arbuscula* ssp. *arbuscula*
Cladonia sylvatica (L.) Hoffm. var. *sylvestris* Oeder f. *caespitosa* Rabenh. = *Cladonia arbuscula* ssp. *arbuscula*
Cladonia sylvatica (L.) Hoffm. var. *sylvestris* Oeder f. *sphagnoides* Flörke = *Cladonia arbuscula* ssp. *arbuscula*
Cladonia sylvatica (L.) Hoffm. f. *arbuscula* (Wahlbr.) Körb. = *Cladonia arbuscula* ssp. *arbuscula*
Cladonia sylvatica (L.) Hoffm. f. *condensata* (Flörke) Coem. = *Cladonia portentosa*
Cladonia sylvatica (L.) Hoffm. f. *myriocarpa* Coem. = *Cladonia arbuscula* ssp. *arbuscula*
Cladonia sylvatica (L.) Hoffm. f. *tectorum* Savicz = *Cladonia arbuscula* ssp. *arbuscula*
Cladonia sylvatica (L.) Hoffm. f. *tenuis* (Flörke) Coem. = *Cladonia tenuis*
Cladonia verticillata Hoffm. var. *cervicornis* (Ach.) Flörke = *Cladonia cervicornis*
Cladonia verticillata Hoffm. var. *evoluta* (Th. Fr.) Stein = *Cladonia verticillata*
Cladonia verticillata Hoffm. var. *evoluta* (Th. Fr.) Stein f. *phyllocephala* Flot. = *Cladonia verticillata*
Cladonia verticillata Hoffm. var. *evoluta* (Th. Fr.) Stein f. *apotiata* Ach. = *Cladonia verticillata*
Cladonia verticillata (Hoffm.) Schaer. var. *verticillata* = *Cladonia verticillata*
Coelocaulon aculeatum (Schreb.) Link = *Cetraria aculeata*
Coelocaulon aculeatum (Schreb.) Link f. *vagans* Golubkov nom. nud. = *Cetraria aculeata*
Coelocaulon muricatum (Ach.) J.R. Laundon = *Cetraria muricata*
Collema auriculatum Hoffm. = *Lathagrium auriforme*
Collema crispum (Huds.) Weber ex F.H. Wigg. = *Blennothallia crispa*
Collema cristatum (L.) Weber ex F.H. Wigg. = *Lathagrium cristatum*
Collema limosum (Ach.) Ach. = *Enchylium limosum*
Collema pulposum (Bernr.) Ach. = *Enchylium tenax*
Collema pulposum (Bernr.) Ach. f. *nudum* Schaer. = *Enchylium tenax*
Collema tenax (Sw.) Ach. = *Enchylium tenax*
Collema tenax (Sw.) Körb. var. *coronatum* Körb. = *Enchylium tenax*
Coniocybe furfuracea (L.) Fr. = *Chaenotheca furfuracea*
Coniocybe gracilenta Ach. = *Chaenotheca gracilenta*
Coniocybe sulphurea (Retz.) Nyl. = *Chaenotheca brachypoda*
Cornicularia aculeata (Schreb.) Ach. = *Cetraria aculeata*
Cornicularia aculeata (Schreb.) Ach. var. *alpina* Schaer. = *Cetraria aculeata*
Cornicularia aculeata (Schreb.) Ach. var. *acanthella* (Ach.) H. Magn. = *Cetraria aculeata*
Cornicularia tenuissima (L.) Sav. = *Cetraria aculeata*
Cybebe gracilenta (Ach.) Tibell = *Chaenotheca gracilenta*
Cyphelium chrysocephalum Ach. f. *filiare* Ach. = *Chaenotheca chrysocephala*
Cyphelium melanophaeum (Ach.) A. Massal. = *Chaenotheca ferruginea*
Cyphelium stemoneum (Ach.) De Not. f. *viride* Fr. = *Chaenotheca stemonea*
Cyphelium trichiale (Ach.) A. Massal. = *Chaenotheca trichialis*
Cyphelium trichiale (Ach.) A. Massal. var. *cinereum* Pers. = *Chaenotheca trichialis*
Cyphelium viridescens (Lilj.) Vain. = *Cyphelium tigillare*

Dermatocarpon cinereum (Pers.) Th. Fr. = *Catapyrenium cinereum*
Dimerella diluta (Pers.) Trevis. = *Coenogonium pineti*
Dimerella pineti (Schr. ex Ach.) Vězda = *Coenogonium pineti*
Diplotomma alboatrum (Hoffm.) Körb. f. *ambigua* (Ach.) Th. Fr. = *Diplotomma alboatrum*

Endopyrenium cinereum (Pers.) Oksner = *Catapyrenium cinereum*
Endopyrenium desertorum (Tomin) Oksner nom. inval. = *Placidium squamulosum*
Endopyrenium desertorum (Tomin) Dzhur. = *Placidium squamulosum*
Endopyrenium hepaticum (Ach.) Körb. = *Catapyrenium cinereum*
Evernia furfuracea (L.) W. Mann. = *Pseudevernia furfuracea*
Evernia furfuracea (L.) W. Mann. f. *nuda* (Ach.) Nyl. = *Pseudevernia furfuracea*
Evernia furfuracea (L.) W. Mann. f. *scobicina* (Ach.) Nyl. = *Pseudevernia furfuracea*
Evernia furfuracea (L.) W. Mann. f. *ceratea* (Ach.) Opiz = *Pseudevernia furfuracea*
Evernia prunastri Ach. var. *prunastri* = *Evernia prunastri*
Evernia prunastri Ach. var. *sorediifera* Ach. = *Evernia prunastri*
Evernia prunastri (L.) Ach. f. *epiphylla* Savicz = *Evernia prunastri*
Evernia prunastri (L.) Ach. f. *lignicola* Tomin = *Evernia prunastri*
Evernia prunastri (L.) Ach. f. *retusa* Ach. = *Evernia prunastri*
Evernia thamnodes (Flot.) Arnold = *Evernia mesomorpha*
Evernia thamnodes (Flot.) Arnold f. *terricola* Kreyer = *Evernia mesomorpha*

Foraminella ambigua (Wulfen) Fricke-Mayer = *Parmeliopsis ambigua*
Foraminella hyperopta (Ach.) S.L.F. Mey. = *Parmeliopsis hyperopta*

Gallowayella coppinsii (S.Y. Kondr. & Kärnefelt) S.Y. Kondr., Fedorenko, S. Stenroos, Kärnefelt, Elix, J.-S. Hur & A. Thell = *Xanthomendoza coppinsii*
Gallowayella fulva (Hoffm.) S.Y. Kondr., Fedorenko, S. Stenroos, Kärnefelt, Elix, J.-S. Hur & A. Thell = *Xanthomendoza fulva*
Gasparrinia decipiens (Arnold) Syd. = *Calogaya pusilla*
Graphis scripta (L.) Ach. f. *recta* Humb. = *Graphis scripta*
Graphis scripta (L.) Ach. f. *serpentina* Ach. = *Graphis scripta*
Graphis scripta (L.) Ach. var. *limitata* (Ach.) Schaer. = *Graphis scripta*
Graphis scripta (L.) Ach. var. *pulverulenta* (Pers.) Ach. = *Graphis scripta*
Graphis scripta (L.) Ach. var. *recta* (Humb.) Körb. f. *macrocarpa* Ach. = *Graphis scripta*
Graphis scripta (L.) Ach. var. *typographica* (Willd.) Zahlbr. = *Graphis scripta*

Haematomma elatinum (Ach.) A. Massal. = *Loxospora elatina*
Haematomma leiphaemum (Ach.) Sandst. = *Haematomma ochroleucum*
Hafellia disciformis (Fr.) Marbach & H. Mayrhofer = *Buellia disciformis*
Huilia crustulata (Ach.) Hertel = *Porpidia crustulata*
Huilia soredizodes (Lamy) Hertel = *Porpidia soredizodes*
Hypocenomyce anthracophila (Nyl.) P. James & Gotth. Schneid. = *Carbonicola anthracophila*
Hypocenomyce friesii (Ach.) P. James & Gotth. Schneid. = *Xylopsora friesii*
Hypogymnia bitteriana (Zahlbr.) Räsänen = *Hypogymnia farinacea*
Hypogymnia physodes (L.) Nyl. f. *physodes* Ach. = *Hypogymnia physodes*
Hypogymnia physodes (L.) Nyl. f. *cassidiformis* (Vereit.) Hakul. = *Hypogymnia physodes*
Hypogymnia physodes (L.) Nyl. f. *epiphylla* (Savicz) Rass. = *Hypogymnia physodes*
Hypogymnia physodes (L.) Nyl. f. *platyphylla* (Ach.) Rass. = *Hypogymnia physodes*
Hypogymnia physodes (L.) Nyl. f. *subcrustacea* (Flot.) Rass. = *Hypogymnia physodes*
Hypogymnia physodes (L.) Nyl. f. *vittatoides* (Mereschk.) Räsänen = *Hypogymnia physodes*
Hypogymnia tubulosa (Schaer.) Hav. f. *farinosa* (Hillmann) Rass. = *Hypogymnia tubulosa*
Hypogymnia vittata (Ach.) Gas. f. *vittata* = *Hypogymnia vittata*

Icmadophila aeruginosa (Scop.) Trevis. = *Icmadophila ericetorum*

Lecanactis deminuens (Nyl.) Elenk. = *Cresponea chloroconia*
Lecania dimera (Nyl.) Th. Fr. = *Lecania dubitans*
Lecania hyalina (Fr.) R. Sant. = *Biatora globulosa*
Lecania prasinoidea Elenk. var. *suaveolens* Elenk. = *Lecania prasinoidea*
Lecania syringea (Ach.) Th. Fr. = *Lecania fuscella*
Lecania syringea (Ach.) Th. Fr. var. *pulla* Kreyer = *Lecania fuscella*

Lecania syringea (Ach.) Th. Fr. f. *nuda* Kreyer = *Lecania fuscella*
Lecanora albella (Pers.) Ach. f. *chondrotypa* (Ach.) Th. Fr. = *Lecanora albella*
Lecanora allophana Nyl. f. *argentata* Ach. = *Lecanora argentata*
Lecanora allophana Nyl. f. *glabrata* (Ach.) Savicz = *Lecanora glabrata*
Lecanora angulosa (Schreb.) Ach. = *Lecanora carpineae*
Lecanora atra (Huds.) Ach. = *Tephromela atra*
Lecanora calcarea (L.) Körb. var. *contorta* (Hoffm.) Körb. = *Circinaria contorta*
Lecanora carpineae (L.) Vain. f. *typica* Kreyer = *Lecanora carpineae*
Lecanora carpineae (L.) Vain. f. *caesionigra* Kreyer = *Lecanora carpineae*
Lecanora carpineae (L.) Vain. var. *inquinata* Kreyer = *Lecanora carpineae*
Lecanora carpineae (L.) Vain. f. *carneo-fuscescens* Kreyer = *Lecanora carpineae*
Lecanora chlarona (Ach.) Nyl. = *Lecanora pulicaris*
Lecanora chlarona (Ach.) Nyl. var. *pinastri* Ach. = *Lecanora pulicaris*
Lecanora chlarotera Nyl. f. *rugosella* (Zahlbr.) Poelt = *Lecanora chlarotera*
Lecanora chloropolia (Erichsen) Almb. = *Lecanora impudens*
Lecanora cinerea (L.) A. Massal. = *Aspicilia cinerea*
Lecanora coilocarpa (Ach.) Nyl. = *Lecanora pulicaris*
Lecanora coilocarpa (Ach.) Nyl. var. *pinastri* (Ach.) Elenk. = *Lecanora pulicaris*
Lecanora coilocarpa (Ach.) Nyl. f. *albocrustacea* Kreyer = *Lecanora pulicaris*
Lecanora conizaea (Ach.) Nyl. = *Lecanora expallens*
Lecanora crassula H. Magn. = *Lecanora chlarotera*
Lecanora crenulata (Dicks.) Hook. = *Myriolecis crenulata*
Lecanora dispersa (Pers.) Röhl. = *Myriolecis dispersa*
Lecanora distans (Pers.) Nyl. = *Lecanora populicola*
Lecanora filamentosa (Stirt.) Elix & Palice = *Palicella filamentosa*
Lecanora glaucella (Flörke) Nyl. = *Lecanora albellula*
Lecanora hagenii (Ach.) Ach. = *Myriolecis hagenii*
Lecanora hagenii Ach. var. *umbrina* (Ehrh.) A. Massal. = *Lecanora umbrina*
Lecanora mutabilis Nyl. = *Megaspora verrucosa*
Lecanora muralis (Schreb.) Rabenh. = *Protoparmeliopsis muralis*
Lecanora pallescens (L.) Röhl. = *Ochrolechia pallescens*
Lecanora pallida (Schreb.) Rabenh. = *Lecanora albella*
Lecanora pinastri (Schaer.) H. Magn. = *Lecanora pulicaris*
Lecanora piniperda Körb. = *Lecanora albellula*
Lecanora polytropa (Ehrh.) Th. Fr. var. *illusoria* Ach. = *Lecanora polytropa*
Lecanora polytropa (Ehrh.) Th. Fr. f. *illusoria* Ach. = *Lecanora polytropa*
Lecanora rugosella Zahlbr. = *Lecanora chlarotera*
Lecanora sambuci (Pers.) Nyl. = *Myriolecis sambuci*
Lecanora subfusca auct. non (L.) Ach. = *Lecanora argentata*
Lecanora subfusca (L.) Ach. nom. rej. = *Lecanora allophana* f. *allophana*
Lecanora subfusca (L.) Ach. var. *argentata* Ach. = *Lecanora argentata*
Lecanora subfusca (L.) Ach. var. *chlarona* Nyl. = *Lecanora pulicaris*
Lecanora subfusca (L.) Ach. var. *transcendens* Ach. = *Lecanora allophana* f. *allophana*
Lecanora subfuscata H. Magn. = *Lecanora argentata*
Lecanora subrugosa Nyl. = *Lecanora argentata*
Lecanora symmicta (Ach.) Ach. = *Palicella filamentosa*
Lecanora symmicta Ach. var. *sepincola* Ach. = *Palicella filamentosa*
Lecanora symmicta Nyl. = *Palicella filamentosa*
Lecanora umbrina (Ehrh.) Röhl. = *Lecanora umbrina*
Lecanora umbrina (Ehrh.) A. Massal. = *Lecanora umbrina*
Lecanora umbrina (Ehrh.) A. Massal. f. *caesio-pruinosa* Elenk. = *Lecanora umbrina*
Lecanora umbrina (Ehrh.) A. Massal. var. *lithophila* (Wallr.) Körb. = *Lecanora umbrina*
Lecidea aeruginosa Borrer = *Trapeliopsis flexuosa*
Lecidea areolata (Kreyer) Zahlbr. = *Biatora areolata*
Lecidea atroviridis (Ach.) Th. Fr. = *Biatora ocelliformis*
Lecidea botryosa (Fr.) Nyl. = *Hertelidea botryosa*

Lecidea caesioatra Schaer. = *Frutidella caesioatra*
Lecidea cinereoatra Ach. = *Porpidia cinereoatra*
Lecidea coarctata f. *cotaria* (Ach.). = *Trapelia coarctata*
Lecidea coarctata f. *elachista* (Ach.) Th. Fr. = *Trapelia involuta*
Lecidea coarctata f. *ornata* (Sommerf.) Th. Fr. = *Trapelia glebulosa*
Lecidea contigua (Ach.) Fr. = *Porpidia macrocarpa*
Lecidea crustulata (Ach.) Spreng. = *Porpidia crustulata*
Lecidea crustulata (Ach.) Körb. var. *cinereoatra* Ach. = *Porpidia cinereoatra*
Lecidea crustulata Ach. f. *subconcentrica* Stein = *Porpidia crustulata*
Lecidea elabens Fr. = *Ramboldia elabens*
Lecidea elaeochroma (Ach.) Choisy = *Lecidella elaeochroma*
Lecidea erratica Körb. = *Leimonis erratica*
Lecidea euphorea (Flörke) Nyl. = *Lecidella euphorea*
Lecidea flexuosa (Fr.) Nyl. = *Trapeliopsis flexuosa*
Lecidea fuscocinerea Nyl. f. *subgyrosa* Kreyer = *Schaereria fuscocinerea*
Lecidea fuscorubens Nyl. = *Clauzadea monticola*
Lecidea glomerulosa (DC.) Steud. = *Lecidella euphorea*
Lecidea glomerulosa (DC.) Nyl. var. *achrista* Sommerf. = *Lecidella euphorea*
Lecidea glomerulosa (DC.) Nyl. var. *euphorea* Flörke = *Lecidella euphorea*
Lecidea goniophila Flörke = *Lecidella anomaloides*
Lecidea granulosa (Hoffm.) Ach. = *Trapeliopsis granulosa*
Lecidea humosa (Hoffm.) Leight. = *Placynthiella uliginosa*
Lecidea incongrua Nyl. f. *spathea* Vain. = *Lecidella stigmatea*
Lecidea latypea Ach. = *Lecidella carpathica*
Lecidea latypiza Nyl. = *Lecidella carpathica*
Lecidea lynceola Th. Fr. = *Micarea lynceola*
Lecidea macrocarpa (DC.) Steud. = *Porpidia macrocarpa*
Lecidea meiospora Nyl. – A name of uncertain application
Lecidea monticola (Ach.) Schaer. = *Clauzadea monticola*
Lecidea musiva Körb. = *Porpidia cinereoatra*
Lecidea obscurella (Sommerf.) Arnold = *Lecanora phaeostigma*
Lecidea oligotropha J.R. Laundon = *Placynthiella oligotropha*
Lecidea olivacea (Hoffm.) A. Massal. = *Lecidella elaeochroma*
Lecidea ostreata Hoffm. = *Hypocenomyce scalaris*
Lecidea parasema (Ach.) Ach. – infrasubspecific name of unknown status
Lecidea platycarpa Ach. = *Porpidia macrocarpa*
Lecidea pungens (Körb.) Nyl. = *Lecidella anomaloides*
Lecidea querneae (Dicks.) Ach. = *Pyrrhospora querneae*
Lecidea sanguineoatra (Wulfen) Lönnrot. = *Bryobilimbia sanguineoatra*
Lecidea scalaris Ach. = *Hypocenomyce scalaris*
Lecidea steriza (Ach.) Vain. = *Porpidia macrocarpa*
Lecidea stigmatea Ach. = *Lecidella stigmatea*
Lecidea sylvana (Körb.) Th. Fr. = *Biatora globulosa*
Lecidea sylvicola Flot. = *Brianaria sylvicola*
Lecidea symmicta Ach. = *Palicella filamentosa*
Lecidea tuberculata Sommerf. = *Brianaria tuberculata*
Lecidea uliginosa (Schrad.) Ach. = *Placynthiella uliginosa*
Lecidea vernalis (L.) Fr. = *Biatora vernalis*
Lecidea viridescens (Schrad.) Ach. = *Trapeliopsis viridescens*
Lepraria aeruginosa Sm. – the name can be applied to various sterile crustose soorediate species
Lepraria candelaria (L.) Fr. = *Chrysothrix candelaris*
Lepraria chlorina Ach. = *Chrysothrix chlorina*
Lepraria lobificans Nyl. sensu auct. Belarus = *Lepraria finkii*
Leptogium crenatellum Tuck. = *Leptogium rivulare*
Leptogium gelatinosum (With.) J.R. Laundon = *Scytinium gelatinosum*
Leptogium lacerum (Sw.) Gray var. *pulvinatum* Ach. = *Scytinium lichenoides*

Leptogium lichenoides (L.) Zahlbr. = Scytinium lichenoides
 Leptogium sinuatum (Huds.) A.Massal. = Scytinium gelatinosum
 Leptogium subtile (Schrad.) Torss. = Scytinium subtile
 Leptogium tenuissimum (Dicks.) Körb. = Scytinium tenuissimum
 Leptogium minutissimum (Flörke) Schaer. = Scytinium subtile
 #Leptorhaphis epidermidis (Ach.) Stein f. fuispora Flot. = Leptorhaphis epidermidis
 Leptorhaphis tremulae Körb. = Leptorhaphis atomaria
 Letharia divaricata (L.) Ach. = Evernia divaricata
 Lichen apthosus L. = Peltigera apthosa
 Lichen barbatus L. = Usnea barbata
 Lichen calicaris L. = Ramalina calicaris
 Lichen candelarius L. = Polycauliona candelaria
 Lichen caninus L. = Peltigera canina
 Lichen caperatus L. = Flavoparmelia caperata
 Lichen chalybeiformis L. = Bryoria fuscescens
 Lichen ciliaris L. = Anaptychia ciliaris
 Lichen cocciferus L. = Cladonia coccifera
 Lichen cornutus L. = Cladonia cornuta
 Lichen crispus L. = Blennothallia crispa
 Lichen crustaceus Gilib. = Stereocaulon paschale
 Lichen ericetorum L. = Icmadophila ericetorum
 Lichen eryngiifolius [eryngii folio] Gilib. = Cetraria islandica
 Lichen farinaceus L. = Ramalina farinacea
 Lichen fimbriatus L. = Cladonia fimbriata
 Lichen floridus L. = Usnea florida
 Lichen fragilis L. = misidentification
 Lichen fraxineus L. = Ramalina fraxinea
 Lichen furfuraceus L. = Pseudevernia furfuracea
 Lichen geographicus L. = Rhizocarpon geographicum
 Lichen gracilis L. = Cladonia gracilis
 Lichen hirtus L. = Usnea hirta
 Lichen incanus L. = Lepraria incana, but in fact the name can be applied to various sterile crustose
 sorediate species
 Lichen incarnatus Gilib. = Dibaeis baeomyces
 Lichen jubatus L. – name can be applied to various pendent species of Bryoria (see Brodo & Hawksworth
 1977, Esslinger 2016)
 Lichen lacteus L. = Varicellaria lactea
 Lichen luteus Gilib. = Polycauliona candelaria
 Lichen olivaceus L. = Melanohalea olivacea
 Lichen parietinus L. = Xanthoria parietina
 Lichen paschalis L. = Stereocaulon paschale
 Lichen perlatus L. = Parmotrema perlatum
 Lichen physodes L. = Hypogymnia physodes
 Lichen prunastri L. = Evernia prunastri
 Lichen pulmonarius L. = Lobaria pulmonaria
 Lichen pyxidatus L. = Cladonia pyxidata, but name can be applied to various cup-shaped species
 Lichen rangiferinus L. [unranked] sylvaticus L. = Cladonia arbuscula ssp. arbuscula
 Lichen rangiferinus L. = Cladonia rangiferina
 Lichen reticulatus Gilib. = Lobaria pulmonaria
 Lichen rostratus Gilib. = Ramalina calicaris
 Lichen rugosus Gilib. = Xanthoria parietina
 Lichen sanguinarius L. = Megalospora sanguinaria
 Lichen saxatilis L. = Parmelia saxatilis
 Lichen scriptus L. = Graphis scripta
 Lichen stellaris L. = Physcia stellaris
 Lichen subfuscus L. = Lecanora allophana f. allophana

Lichen subulatus L. = Cladonia subulata
 Lichen tomentosus Gilib. = Evernia prunastri
 Lichen uncialis L. = Cladonia uncialis ssp. uncialis
 Lichen venosus Gilib. = Peltigera canina
 Lithoidea nigrescens (Pers.) A. Massal. f. fuscoatra (Wallr.) Stein = Verrucaria nigrescens
 Lobaria pulmonaria (L.) Hoffm. f. leptophylla (Wallr.) Zahlbr. = Lobaria pulmonaria
 Lobaria pulmonaria (L.) Hoffm. f. soledata (Schaer.) Zahlbr. = Lobaria pulmonaria
 Lobaria verrucosa (Huds.) Hoffm. = Lobaria scrobiculata
 Lobaria scrobiculata (Scop.) Nyl. ex Cromb. = Lobaria scrobiculata

 Mallotium tomentosum Körb. = Leptogium saturninum
 Massjukiella candelaria (L.) S.Y. Kondr., Fedorenko, S. Stenroos, Kärnefelt, Elix, J.-S. Hur & A. Thell =
 Polycauliona candelaria
 Massjukiella polycarpa (Hoffm.) S.Y. Kondr., Fedorenko, S. Stenroos, Kärnefelt, Elix, J.-S. Hur & A. Thell
 = Polycauliona polycarpa
 Massjukiella ucrainica (S.Y. Kondr.) S.Y. Kondr., Fedorenko, S. Stenroos, Kärnefelt, Elix, J.-S. Hur &
 A. Thell = Polycauliona ucrainica
 Massjukiella ucrainica (S.Y. Kondr.) S.Y. Kondr., Fedorenko, S. Stenroos, Kärnefelt, Elix, J.-S. Hur & A.
 Thell ssp. marginata (Räsänen) S.Y. Kondr., Fedorenko, S. Stenroos, Kärnefelt, Elix, J.-S. Hur & A.
 Thell = Polycauliona ucrainica
 Melanelia acetabulum (Neck.) Essl. = Pleurosticta acetabulum
 Melanelia exasperata (De Not.) Essl. = Melanohalea exasperata
 Melanelia exasperatula (Nyl.) Essl. = Melanohalea exasperatula
 Melanelia fuliginosa (Fr. ex Duby) Essl. sensu auct. Belarus = Melanelixia glabratula
 Melanelia fuliginosa (Fr. ex Duby) Essl. subsp. glabratula (Lamy) Coppins = Melanelixia glabratula
 Melanelia glabratula (Lamy) Essl. ssp. glabratula (Lamy) Coppins = Melanelixia glabratula
 Melanelia incolorata (Parrique) Essl. = Melanohalea elegantula
 Melanelia olivacea (L.) Essl. = Melanohalea olivacea
 Melanelia soledata (Ach.) Goward & Ahti = Montanelia soledata
 Melanelia subargentifera (Nyl.) Essl. = Melanelixia subargentifera
 Melanelia subaurifera (Nyl.) Essl. = Melanelixia subaurifera
 Melanelixia fuliginosa (Duby) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch ssp.
 glabratula (Lamy) J.R. Laundon = Melanelixia glabratula
 Melanelixia fuliginosa (Duby) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch sensu auct.
 Belarus = Melanelixia glabratula
 Melanelixia subaurifera (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch f.
 fuliginoides B. de Lesd. = Melanelixia subaurifera
 Melaspilea gibberulosa (Ach.) Zwackh = Hazslinszkyia gibberulosa
 Menegazzia pertusa (Schaer.) Schaer. = Menegazzia terebrata
 Micarea erratica (Körb.) Hertel, Rambold & Pietschm. = Leimonis erratica
 Micarea sylvicola (Flot.) Vězda & V. Wirth = Brianaria sylvicola
 Micarea tuberculata (Sommerf.) R.A. Anderson = Brianaria tuberculata
 Microphlale diluta (Pers.) Zahlbr. = Coenogonium pineti
 +Microthelia atomaria (Ach.) Körb. = Mycomicrothelia melanospora
 +Microthelia koerberi Trevis. = Mycomicrothelia melanospora
 #Monerolechia badia (Fr.) Kalb = Buellia badia
 Mycobilimbia sabuletorum (Schreb.) Hafellner = Bilimbia sabuletorum
 Mycoblastus sanguinarius (L.) Norman = Megalospora sanguinaria
 +Mycocalicium parietinum (Ach. ex Schaer.) D. Hawksw. = Mycocalicium subtile
 Mycomicrothelia atomaria (DC.) Keissl. = Leptorhaphis atomaria
 Mycopyrenula coryli (A. Massal.) Vain. = Pyrenula coryli
 Myxobilimbia sabuletorum (Schreb.) Hafellner = Bilimbia sabuletorum

 Neofuscelia loxodes (Nyl.) Essl. = Xanthoparmelia loxodes
 Neofuscelia pulla (Ach.) Essl. = Xanthoparmelia pulla
 Neofuscelia verruculifera (Nyl.) Essl. = Xanthoparmelia verruculifera

Nephroma resupinatum (L.) Ach. var. *rameum* Nyl. = *Nephroma resupinatum*

Ochrolechia turneri (Sm.) Land. sensu Gorbach = *Ochrolechia microstictoides*

Omphalina ericetorum (Fr.) M. Lange = *Lichenomphalia umbellifera*

Opegrapha atra Pers. = *Arthonia atra*

Opegrapha devulgata Nyl. = *Opegrapha vulgata*

Opegrapha diaphora (Ach.) Ach. = *Alyxoria varia*

Opegrapha diaphora Ach. var. *spircata* Ach. = *Alyxoria varia*

Opegrapha diaphora Ach. var. *tridens* (Ach.) H. Olivier = *Alyxoria varia*

Opegrapha hapaleoides Nyl. = *Opegrapha vermicellifera*

Opegrapha herpetica Ach. = *Pseudoschismatomma rufescens*

Opegrapha lichenoides Pers. = *Alyxoria varia*

Opegrapha pulicaris (Hoffm.) Schrad. = *Alyxoria varia*

Opegrapha pulicaris (Hoffm.) Schrad. f. *minuta* = *Alyxoria varia*

Opegrapha rufescens Pers. = *Pseudoschismatomma rufescens*

Opegrapha rufescens Pers. f. *albicans* (Chevall.) Makar. = *Pseudoschismatomma rufescens*

Opegrapha rufescens Pers. f. *arthonoidea* (Schaer.) Makar. = *Pseudoschismatomma rufescens*

Opegrapha subsiderella (Nyl.) Arnold = *Opegrapha niveoatra*

Opegrapha varia Pers. = *Alyxoria varia*

Opegrapha varia Pers. var. *diaphora* Ach. = *Alyxoria varia*

Opegrapha varia Pers. var. *pulicaris* Hoffm. = *Alyxoria varia*

Opegrapha varia Pers. f. *pulicaris* (Hoffm.) Nyl. = *Alyxoria varia*

Opegrapha viridis Pers. = *Zwackhia viridis*

Oxneria coppinsii S.Y. Kondr. & Kärnefelt = *Xanthomendoza coppinsii*

Oxneria fallax (Hepp) S.Y. Kondr. & Kärnefelt sensu auct. Belarus = *Xanthomendoza huculica*

Oxneria fulva (Hoffm.) S.Y. Kondr. & Kärnefelt = *Xanthomendoza fulva*

Oxneria huculica S.Y. Kondr. = *Xanthomendoza huculica*

Oxneria ulophyllodes (Räsänen) S.Y. Kondr. & Kärnefelt = *Xanthomendoza ulophyllodes*

Pachyphiale fagicola (Hepp) Zwackh = *Gyalecta fagicola*

Parmelia acetabulum (Neck.) Duby = *Pleurosticta acetabulum*

Parmelia ambigua (Wulfen) Ach. = *Parmeliopsis ambigua*

Parmelia aspera A. Massal. = *Melanohalea exasperata*

Parmelia aspidota (Ach.) Röhl. = *Melanohalea exasperata*

Parmelia caperata (L.) Ach. = *Flavoparmelia caperata*

Parmelia centrifuga (L.) Ach. = *Arctoparmelia centrifuga*

Parmelia ceratea Zopf = *Pseudevernia furfuracea*

Parmelia cetrarioides Delise = the reports should be treated as *Cetrelia* spp.

Parmelia ciliaris Fr. = *Anaptychia ciliaris*

Parmelia conspersa (Ehrh.) Ach. = *Xanthoparmelia conspersa*

Parmelia conspersa (Ehrh.) Ach. f. *isidiata* Anzi = *Xanthoparmelia conspersa*

Parmelia conspurcata (Schaer.) Vain. = *Melanelixia subargentifera*

Parmelia cylisphora (Ach.) Vain. = *Flavoparmelia caperata*

Parmelia duplicata Sm. ex Ach. = *Hypogymnia vittata*

Parmelia elegantula (Zahlbr.) Räsänen = *Melanohalea elegantula*

Parmelia exasperata De Not. = *Melanohalea exasperata*

Parmelia exasperatula Nyl. = *Melanohalea exasperatula*

Parmelia farinacea Bitter = *Hypogymnia farinacea* Zopf

Parmelia fuliginosa (Fr.) Nyl. sensu auct. Belarus = *Melanelixia glabratula*

Parmelia fuliginosa (Fr.) Nyl. var. *laetevirens* Nyl. = *Melanelixia glabratula*

Parmelia furfuracea (L.) Ach. = *Pseudevernia furfuracea*

Parmelia furfuracea (L.) Ach. var. *ceratea* Ach. = *Pseudevernia furfuracea*

Parmelia glabra (Nyl.) Vain. var. *conspurcata* (Schaer.) Elenk. = *Melanelixia subargentifera*

Parmelia glabratula Lamy = *Melanelixia glabratula*

Parmelia glabratula (Lamy) Nyl. ssp. *fuliginosa* (Fr. ex Duby) J.R. Laundon sensu auct. Belarus =
Melanelixia glabratula

Parmelia glomellifera Nyl. = *Xanthoparmelia verruculifera*
Parmelia isidiotyla Nyl. auct. Belarus = *Xanthoparmelia verruculifera*
Parmelia laetevirens (Flot.) F. Rosend. = *Melanelixia glabratula*
Parmelia molliuscula Ach. sensu auct. Belarus = *Xanthoparmelia angustiphylla*
Parmelia olivacea (L.) Ach. = *Melanohalea olivacea*
Parmelia papulosa (Anzi) Vain. = *Melanohalea exasperatula*
Parmelia papulosa (Anzi) Vain. f. *epiphylla* Savicz = *Melanohalea exasperatula*
Parmelia parietina = *Xanthoria parietina*
Parmelia perlata (L.) Ach. nom. invalid., refers to *Cetrelia* spp.
Parmelia perlata (L.) Ach. f. *cetrarioides* (Del.) Elenk. nom. invalid., refers to *Cetrelia* spp.
Parmelia perlata (L.) Ach. f. *sorediata* Schaer. nom. invalid., refers to *Cetrelia* spp.
Parmelia perlata (L.) Ach. f. *sorediifera* Oksner nom. invalid., refers to *Cetrelia* spp.
Parmelia pertusa (Schränk) Schaer. = *Menegazzia terebrata*
Parmelia physodes (L.) Ach. = *Hypogymnia physodes*
Parmelia physodes (L.) Ach. f. *arenicola* (B. de Lesd.) = *Hypogymnia physodes*
Parmelia physodes (L.) Ach. f. *cassidiformis* Vereit. = *Hypogymnia physodes*
Parmelia physodes (L.) Ach. f. *epiphylla* Savicz = *Parmelia physodes*
Parmelia physodes (L.) Ach. f. *foraminifera* Vereit. = *Hypogymnia physodes*
Parmelia physodes (L.) Ach. f. *granulata* Boistel = *Hypogymnia physodes*
Parmelia physodes (L.) Ach. f. *labrosa* Ach. = *Hypogymnia physodes*
Parmelia physodes (L.) Ach. f. *platyphylla* Ach. = *Hypogymnia physodes*
Parmelia physodes (L.) Ach. f. *stigmatia* Wallr. = *Hypogymnia physodes*
Parmelia physodes (L.) Ach. f. *typica* Vereit. = *Hypogymnia physodes*
Parmelia physodes (L.) Ach. var. *labrosa* Ach. = *Hypogymnia physodes*
Parmelia prolixa (Ach.) Nyl. = *Xanthoparmelia pulla*
Parmelia pulla Ach. = *Xanthoparmelia pulla*
Parmelia pulverulenta Hoffm. = *Physconia distorta*
Parmelia revoluta Flörke = *Hypotrachyna revoluta*
Parmelia rubescens (Th. Fr.) Vain. = *Cetrelia olivetorum*, but excluded as doubtful report
Parmelia saxatilis (L.) Ach. var. *aizonii* Delise = *Parmelia saxatilis*
Parmelia scortea (Ach.) Ach. = *Parmelina tiliacea*
Parmelia soorediata (Ach.) Th. Fr. = *Montanelia soorediata*
Parmelia soorediosa Almb. = *Montanelia soorediata*
Parmelia stuppea Taylor = *Parmotrema stuppeum*
Parmelia subargentifera Nyl. = *Melanelixia subargentifera*
Parmelia subaurifera Nyl. = *Melanelixia subaurifera*
Parmelia sulcata Taylor f. *epiphylla* Savicz = *Parmelia sulcata*
Parmelia sulcata Taylor f. *munda* Oliv. = *Parmelia sulcata*
Parmelia sulcata Taylor f. *nitida* Mereschk. = *Parmelia sulcata*
Parmelia sulcata Taylor f. *pruinosa* Hillm. = *Parmelia sulcata*
Parmelia taractica sensu auct. Belarus = *Xanthoparmelia angustiphylla*
Parmelia tiliacea (Hoffm.) Ach. = *Parmelina tiliacea*
Parmelia tubulosa (Schaer.) Bitter = *Hypogymnia tubulosa*
Parmelia verruculifera Nyl. = *Xanthoparmelia verruculifera*
Parmelia vittata (Ach.) Bitter = *Hypogymnia vittata*
Parmeliopsis aleurites (Ach.) Nyl. = *Imshaugia aleurites*
Parmeliopsis pallescens (Hoffm.) Zahlbr. = *Imshaugia aleurites*
Parmeliopsis pallescens (Hoffm.) Hillm. f. *vulnerata* (Hillm.) Rassad. = *Imshaugia aleurites*
Parmotrema stuppea (Taylor) Hale = *Parmotrema stuppeum*
Peltigera canina (L.) Schaer. var. *praetextata* Flörke = *Peltigera praetextata*
Peltigera canina (L.) Hoffm. f. *leucorrhiza* (Flörke) Schaer. = *Peltigera canina*
Peltigera canina (L.) Schaer. f. *praetextata* Flörke = *Peltigera praetextata*
Peltigera canina (L.) Willd. f. *spongiosa* Tuck. = *Peltigera canina*
Peltigera canina (L.) Hoffm. f. *ulorrhiza* (Flörke) Schaer. = *Peltigera rufescens*
Peltigera didactyla (With.) J.R. Laundon var. *extenuata* (Nyl. ex Vain.) Goffinet & Hastings = *Peltigera extenuata*

Peltigera erumpens (Taylor) Vain. = *Peltigera didactyla*
Peltigera erumpens (Tayl.) Lang. var. *hazslinszkyi* (Gyeln.) Oksner = *Peltigera didactyla*
Peltigera polydactyla (Neck.) Hoffm. = the name refers to various *Peltigera* species, including *P. hymenina*,
P. neckeri, *P. neopolydactyla* and *P. polydactylon* (see also Golubkov & Zavarzin 2010)
Peltigera polydactyla Hoffm. var. *hymenina* Ach. = *Peltigera hymenina*
Peltigera spuria (Ach.) DC. = *Peltigera didactyla*
Peltigera subcanina Gyeln. = *Peltigera praetextata*
Pertusaria albescens (Huds.) M. Choisy & Werner = *Lepra albescens*
Pertusaria amara (Ach.) Nyl. = *Lepra amara*
Pertusaria amara (Ach.) Nyl. f. *carpini* Erichsen = *Lepra amara*
Pertusaria amara (Ach.) Nyl. f. *macrosora* Erichsen = *Lepra amara*
Pertusaria amara (Ach.) Nyl. f. *sanguinescens* Erichsen = *Lepra amara*
Pertusaria amara (Ach.) Nyl. var. *alnea* (Ach.) Erichsen = *Lepra amara*
Pertusaria amara (Ach.) Nyl. var. *myrmecina* (Erichsen) Makar. = *Lepra amara*
Pertusaria amara (Ach.) Nyl. var. *pulvinata* (Erichsen) Makar. = *Lepra amara*
Pertusaria arborea (Kreyer) Zahlbr. = *Ochrolechia arborea*
Pertusaria coccodes (Ach.) Nyl. var. *farinosa* Erichsen = *Pertusaria coccodes*
Pertusaria communis DC. = *Pertusaria pertusa*
Pertusaria discoidea (Pers.) Malme = *Lepra albescens*
Pertusaria discoidea (Pers.) Malme f. *minor* Erichsen = *Lepra albescens*
Pertusaria discoidea (Pers.) Malme f. *musculicola* Erichsen = *Lepra albescens*
Pertusaria globulifera (Turner) A. Massal. = *Lepra albescens*
Pertusaria globulifera (Turner) A. Massal. f. *saxicola* Arnold = *Lepra albescens*
Pertusaria globulifera (Turner) A. Massal. f. *henrici* Harm. = *Lepra albescens*
Pertusaria hemisphaerica (Flörke) Erichsen = *Varicellaria hemisphaerica*
Pertusaria henrici (Harm.) Erichsen = *Lepra albescens*
Pertusaria laevigata (Nyl.) Arnold = *Lepra trachythallina*
Pertusaria lactea (L.) Arnold = *Varicellaria lactea*
Pertusaria leptospora Nitschke = *Lepra multipuncta*
Pertusaria leucostoma A. Massal. = *Pertusaria leioplaca*
Pertusaria leucostoma (Bernh.) A. Massal. var. *deshiscens* Erichsen = *Pertusaria leioplaca*
Pertusaria lutescens (Hoffm.) Lamy = *Pertusaria flavida*
Pertusaria multipuncta (Turner) Nyl. = *Lepra multipuncta*
Pertusaria multipuncta (Turner) Nyl. var. *leptospora* Oliv. = *Lepra multipuncta*
Pertusaria ophthalmisa (Nyl.) Nyl. = *Lepra ophthalmiza*
Pertusaria pertusa (L.) Tuck. var. *pertusa* = *Pertusaria pertusa*
Pertusaria pertusa (L.) Tuck. var. *polycarpa* (D.S. Clemente) Zahlbr. = *Pertusaria pertusa*
Pertusaria phymatodes (Ach.) Erichsen = *Pertusaria coccodes*
Pertusaria rugosa Zwakch. nom. dub. = *Pertusaria leioplaca*
Pertusaria rugulosa Zwakch. = *Pertusaria leioplaca*
Pertusaria trachythallina Erichsen = *Lepra trachythallina*
Phaeophyscia chloantha (Ach.) Moberg = *Physciella chloantha*
Physcia adscendens (Fr.) Bitter f. *leptalea* Ach. = *Physcia leptalea*
Physcia aipolia (Ehrh. ex Humb.) Fűrnr. var. *alnophila* (Vain.) Lynge = *Physcia alnophila*
Physcia astroidea auct. = *Physcia clementei*
Physcia ciliata (Hoffm.) Du Rietz = *Phaeophyscia ciliata*
Physcia ciliata (Hoffm.) Du Rietz f. *typica* Oksner = *Phaeophyscia ciliata*
Physcia cycloselis Vain. = *Phaeophyscia orbicularis*
Physcia detera Nyl. = *Physconia detera*
Physcia grisea (Lam.) Zahlbr. = *Physconia grisea*
Physcia grisea (Lam.) Zahlbr. sensu Tomin = *Physconia detera*
Physcia grisea (Lam.) Elenk. var. *leucoleiptes* Tuck. = *Physconia detera*
Physcia grisea (Lam.) Elenk. var. *leucoleiptes* Tuck. f. *argyphaeoides* Harm. = *Physconia detera*
Physcia grisea (Lam.) Elenk. var. *leucoleiptes* Tuck. f. *typica* Elenk. = *Physconia detera*
Physcia grisea (Lam.) Zahlbr. var. *pityrea* (Ach.) Lynge = *Physconia grisea*
Physcia grisea (Lam.) Zahlbr. var. *semifarrea* (Vain.) Lynge = *Physconia grisea*

Physcia hispida sensu auct. Belarus = *Physcia adscendens*
Physcia hispida sensu auct. Gorbach = *Physcia tenella*
Physcia hispida (Schreb.) Elenk. var. *adscendens* Fr. = *Physcia adscendens*
Physcia hispida (Schreb.) Elenk. var. *tenella* (Scop.) Fr. = *Physcia tenella*
Physcia hispida (Schreb.) Elenk. var. *tenella* (Scop.) Fr. f. *epiphylla* Savicz = *Physcia tenella*
Physcia leucoleiptes (Tuck.) Lettau = *Physconia detera*
Physcia nigricans (Flörke) Stizenb. = *Phaeophyscia nigricans*
Physcia obscura (Ehrh.) Th. Fr. = *Phaeophyscia ciliata*
Physcia obscura Ehrh. var. *chloantha* (Ach.) Schaer. = *Physciella chloantha*
Physcia obscura Ehrh. var. *virella* (Ach.) Leight. = *Phaeophyscia orbicularis*
Physcia obscura (Ehrh.) Th. Fr. f. *cycloselis* (Ach.) Th. Fr. = *Phaeophyscia ciliata*
Physcia obscura (Ehrh.) Th. Fr. f. *ulothrix* (Ach.) Th. Fr. = *Phaeophyscia ciliata*
Physcia orbicularis (Neck.) Du Rietz = *Phaeophyscia orbicularis*
Physcia pityrea (Ach.) Nyl. = *Physconia grisea*
Physcia pulverulenta (Schreb.) Hampe = *Physconia distorta*
Physcia pulverulenta (Schreb.) Nyl. var. *allochroa* (Ehrh.) Th. Fr. = *Physconia distorta*
Physcia pulverulenta (Schreb.) Nyl. var. *allochroa* (Ehrh.) Th. Fr. f. *argyphaea* (Ach.) Harm. = *Physconia distorta*
Physcia pulverulenta (Ach.) Nyl. var. *allochroa* (Ehrh.) Th. Fr. f. *imbricata* B. de Lesd. = *Physconia distorta*
Physcia pulverulenta (Schreb.) Nyl. var. *turgida* (Schaer.) Elenk. f. *imbricata* B. de Lesd. = *Physconia distorta*
Physcia pulverulenta (Schreb.) Nyl. f. *venusta* (Ach.) Th. Fr. = *Physconia distorta*
Physcia pulverulenta (Ach.) Nyl. var. *venusta* (Ach.) Nyl. = *Physconia distorta*
Physcia semipinnata (J.F. Gmel.) Moberg = *Physcia leptalea*
Physcia stellaris (L.) Nyl. var. *radiala* (Ach.) Nyl. = *Physcia stellaris*
Physcia stellaris (L.) Nyl. var. *rosulata* (Ach.) Nyl. = *Physcia stellaris*
Physcia tenella (Scop.) DC. f. *leptalea* Ach. = *Physcia leptalea*
Physcia tenella (Scop.) DC. f. *exemta* Ach. = *Physcia tenella*
Physcia tremulicola Nyl. = *Phaeophyscia nigricans*
Physcia tremulicola Nyl. f. *typica* Lynge = *Phaeophyscia nigricans*
Physcia virella (Ach.) Kreyer = *Phaeophyscia orbicularis*
Physconia pulverulacea Moberg = *Physconia distorta*
Physconia pulverulenta (Hoffm.) Poelt = *Physconia distorta*
Physconia venusta (Ach.) Poelt sensu auct. Belarus = *Physconia distorta*
Placodium aurantiacum (Lightf.) Hepp var. *flavovirescens* (Wulfen) Th. Fr. = *Gyalolechia flavovirescens*
Placodium cerinellum (Nyl.) Vain. = *Athallia cerinella*
Placodium cerinum (Ehrh.) Vain. sensu auct. Belarus = *Athallia pyracea* s. lat.
Placodium cerinum (Ehrh.) Vain. f. *holocarpa* (Ehrh.) Elenk. sensu auct. Belarus = *Athallia pyracea* s. lat.
Placodium ferrugineum (Huds.) Hepp sensu Kreyer = *Blastenia crenularia*
Placodium gilvum (Hoffm.) Vain. = *Caloplaca cerina*
Placodium gilvum (Hoffm.) Vain. f. *cyanolepra* Th. Fr. = *Caloplaca cerina*
Placodium gilvum (Hoffm.) Vain. var. *ehrhartii* (Schaer.) Th. Fr. = *Caloplaca cerina*
Placodium murorum (Hoffm.) DC. = *Calogaya pusilla*
Placodium murorum (Hoffm.) DC. var. *tegularis* (Ehrh.) Elenk. = *Calogaya pusilla*
Placolecanora muralis (Schreb.) Räsänen = *Protoparmeliopsis muralis*
Porina aenea (Wallr.) Zahlbr. = *Pseudosagedia aenea*
Porina carpinea (Pers.) Zahlbr. = *Pseudosagedia aenea*
Porpidia musiva (Körb.) Hertel & Knoph = *Porpidia cinereoatra*
Pseudevernia furfuracea (L.) Zopf var. *ceratea* (Ach.) D. Hawksw. = *Pseudevernia furfuracea*
Pseudosagedia cerasi (Schrad.) Oksner = *Arthopyrenia cerasi*
Psora ostreata Hoffm. = *Hypocenomyce scalaris*
Psora scalaris (Ach. ex Lilj.) Hook. = *Hypocenomyce scalaris*
Pyrrhospora elabens (Fr.) Hafellner = *Ramboldia elabens*

Ramalina angustissima (Anzi) Vain. = *Ramalina subfarinacea*
Ramalina baltica Lettau f. *lobulosa* Kreyer = *Ramalina baltica*

Ramalina baltica Lettau f. *galeaformis* Kreyer = *Ramalina baltica*
Ramalina baltica Lettau var. *baltica* = *Ramalina baltica*
Ramalina crinalis (Ach.) Gyeln. = *Ramalina thrausta*
Ramalina crinalis (Ach.) Gyeln. var. *thrausta* (Ach.) Motyka = *Ramalina thrausta*
Ramalina dilacerata (Hoffm.) Hoffm. f. *turgida* Räsänen = *Ramalina dilacerata*
Ramalina fallax Motyka = *Ramalina farinacea*
Ramalina farinacea (L.) Ach. var. *pendulina* Ach. = *Ramalina farinacea*
Ramalina farinacea (L.) Ach. var. *multifida* Ach. = *Ramalina farinacea*
Ramalina farinacea (L.) Ach. var. *luxurians* Motyka = *Ramalina farinacea*
Ramalina farinacea (L.) Ach. var. *rubescens* Räsänen = *Ramalina farinacea*
Ramalina farinacea (L.) Ach. var. *gracilentia* Ach. = *Ramalina farinacea*
Ramalina farinacea (L.) Ach. var. *phalerata* Ach. = *Ramalina farinacea*
Ramalina farinacea (L.) Ach. var. *rubescens* Räsänen = *Ramalina farinacea*
Ramalina fastigiata (Liljebl.) Ach. var. *horrida* Motyka = *Ramalina fastigiata*
Ramalina fraxinea (L.) Ach. f. *ampliata* (Ach.) Schaer. = *Ramalina fraxinea*
Ramalina fraxinea (L.) Ach. f. *calicariformis* Nyl. = *Ramalina fraxinea*
Ramalina fraxinea (L.) Ach. var. *crispa* Motyka = *Ramalina fraxinea*
Ramalina landroënsis Zopf = *Ramalina sinensis*
Ramalina landroënsis Zopf v. *nervosa* (Nyl.) Motyka = *Ramalina sinensis*
Ramalina minuscula Nyl. = *Ramalina dilacerata*
Ramalina obtusata (Ach.) Bitter sensu auct. Belarus = *Ramalina baltica*
Ramalina pollinaria (Westr.) Ach. f. *hemisphaerica* Tomin = *Ramalina pollinaria*
Ramalina pollinaria (Westr.) Ach. var. *elatior* Ach. = *Ramalina pollinaria*
Ramalina pollinaria (Westr.) Ach. var. *humilis* Ach. = *Ramalina pollinaria*
Ramalina pollinaria (Westr.) Ach. var. *subbaltica* Kreyer = *Ramalina pollinaria*
Ramalina populina (Ehrh. ex Hoffm.) Vain. = *Ramalina fastigiata*
Ramalina pulvinata (Anzi) Jatta sensu auct. Belarus = *Ramalina pollinaria*
Rhizocarpon ambiguum (Schaer.) Zahlbr. = *Rhizocarpon distinctum*
Rhizocarpon concentricum (Davies) Beltr. = *Rhizocarpon petraeum*
Rhizocarpon concentricum (Dav.) Beltr. f. *excentricum* Ach. = *Rhizocarpon petraeum*
Rhizocarpon obscuratum (Flörke) Körb. = *Rhizocarpon reductum*
Rhizocarpon obscuratum (Flörke) Körb. f. *subcontiguum* Nyl. = *Rhizocarpon reductum*
Rhizocarpon obscuratum (Ach.) A. Massal. var. *lavatum* (Ach.) Fr. = *Rhizocarpon lavatum*
Rinodina arenaria (Hepp) Th. Fr. = *Rinodina teichophila*
Rinodina discolor (Hepp) Arnold = *Rinodina oxydata*
Rinodina exigua (Ach.) A. Massal. var. *lecideina* Nyl. = identity uncertain
Rinodina sophodes (Ach.) Th. Fr. var. *genuina* Th. Fr. = misidentification
Rinodina subexigua (Nyl.) H. Olivier = *Rinodina gennarii*

Saccomorpha arenicola Elenkin = *Placynthiella hyporhoda*
Saccomorpha uliginosa (Schrad.) Hafellner = *Placynthiella uliginosa*
Sarcogyne pruinosa (Sm.) Körb. f. *illuta* Ach. = *Sarcogyne regularis*
Schismatomma abietinum (Ehrh.) Körb. = *Schismatomma pericleum*
Sclerophora nivea (Hoffm.) Tibell = *Sclerophora pallida*
Scoliciosporum umbrinum (Ach.) Arnold var. *corticolum* (Anzi) Bagl. & Carestia = *Scoliciosporum umbrinum*
Sphinctrina gelasinata (With.) Zahlbr. = *Sphinctrina turbinata*
Squamaria muralis (Schreb.) Elenk. = *Protoparmeliopsis muralis*
Staurothele catalepta (Ach.) Blomb. & Forssell = *Verrucaria aethiobola*
Stereocaulon coralloides Fr. = *Stereocaulon dactylophyllum*
Sticta pulmonaria (L.) Schaer. = *Lobaria pulmonaria*

Thelocarpon prasinellum Nyl. = *Thelocarpon laureri*
Tuckermannopsis chlorophylla (Willd.) Hale = *Nephromopsis chlorophylla*
Tuckermannopsis ciliaris (Ach.) Gyeln. = *Nephromopsis ciliaris*
Tuckermannopsis pinastri (Scop.) Hale = *Cetraria pinastri*

Tuckermannopsis sepincola (Ehrh.) Hale = *Cetraria sepincola*

Urceolaria scruposa (L.) Ach. var. *vulgaris* Körb. = *Diploschistes scruposus*

Usnea barbata (L.) Fr. var. *dasypoga* (L.) Fr. = misidentification

Usnea barbata (L.) Fr. var. *florida* (L.) Th. Fr. = *Usnea florida*

Usnea barbata (L.) Fr. var. *florida* (L.) Th. Fr. f. *hirta* (L.) Körb = *Usnea hirta*

Usnea barbata (L.) Fr. var. *florida* (L.) Th. Fr. f. *minutissima* Mereschk. = *Usnea florida*

Usnea caucasica Vain. = *Usnea barbata*

Usnea ceratina Ach. var. *incurvescens* Arnold = *Usnea ceratina*

Usnea comosa (Ach.) Röhl. = *Usnea subfloridana*

Usnea comosa (Ach.) Röhl. var. *graucina* Motyka = *Usnea subfloridana*

Usnea comosa (Ach.) Röhl. var. *sordidula* Motyka = *Usnea subfloridana*

Usnea comosa (Ach.) Röhl. ssp. *similis* Motyka = *Usnea subfloridana*

Usnea dasypoga (Ach.) Röhl. ssp. *tuberculata* Motyka = *Usnea dasopoga*

Usnea dasypoga (Ach.) Röhl. var. *dasypoga* = *Usnea dasopoga*

Usnea distincta Motyka nom illeg. = *Usnea glabrescens*

Usnea esthonica Räsänen = *Usnea barbata*

Usnea filipendula Stirt. = *Usnea dasopoga*

Usnea filipendula Stirt. var. *spuria* (Motyka) N.S. Golubk. = *Usnea dasopoga*

Usnea florida (L.) F.H. Wigg. var. *florida* = *Usnea florida*

Usnea florida (L.) Hoffm. var. *hirta* (Hoffm.) Ach. = *Usnea hirta*

Usnea florida (L.) Hoffm. var. *hirta* (Hoffm.) Ach. f. *minutissima* Mereschk. = *Usnea florida*

Usnea florida (L.) Hoffm. var. *hirta* (Hoffm.) Ach. f. *sorediella* Br. & Rostr. = *Usnea florida*

Usnea florida (L.) Hoffm. var. *sorediifera* Arnold = *Usnea glabrata*

Usnea florida (L.) Hoffm. f. *epiphylla* Savicz = *Usnea hirta*

Usnea florida (L.) Hoffm. f. *juvenalis* Savicz = *Usnea florida*

Usnea hirta (L.) F.H. Wigg. ssp. *typica* Motyka = *Usnea hirta*

Usnea hirta (L.) F.H. Wigg. var. *hirta* Motyka = *Usnea hirta*

Usnea hirta (L.) F.H. Wigg. var. *villosa* (Ach.) Motyka = *Usnea hirta*

Usnea hirta (L.) Weber ex F.H. Wigg. f. *minutissima* Mereschk. = *Usnea hirta*

Usnea jubata Hoffm. – name can be applied to various pendent species of *Bryoria* (see Brodo & Hawksworth 1977, Esslinger 2016)

Usnea laricina (Nyl. ex Vain.) Vain. = *Usnea glabrescens*

Usnea plicata (L.) Hoffm. = *Usnea dasopoga*

Usnea prostrata Vain. = *Usnea barbata*

Usnea rubiginosa (Mich.) A. Massal. = *Usnea rubicunda*

Usnea rugulosa Vain. = *Usnea barbata*

Usnea scabrata Nyl. = *Usnea barbata*

Usnea sublaxa Vain. = *Usnea dasopoga*

Usnea sylvatica Motyka = *Usnea barbata*

Variolaria arborea (Kreyer) Ljubitz. = *Ochrolechia arborea*

Variolaria globulifera Turner = *Lepra albescens*

Variolaria faginea (L.) Elenk. = *Lepra amara*

Variolaria faginea (L.) Elenk. f. *concentrica* Savicz = *Lepra amara*

Variolaria lactea (Pers.) Ach. var. *arborea* Kreyer = *Ochrolechia arborea*

Variolaria laevigata (Nyl.) Darb. = *Lepra trachythallina*

Variolaria multipuncta Turner = *Lepra multipuncta*

Verrucaria laevata Ach. = *Verrucaria aethiobola*

Verrucaria muralis Ach. var. *puteana* Hepp = *Verrucaria muralis*

Verrucaria nigricans Pers. nom. inval. = *Verrucaria nigrescens*

Verrucaria papillosa Flörke = *Verrucaria floerkeana*

Vulpicida juniperinus. (L.) J.-E. Mattsson & M. J. Lai = *Cetraria juniperina*

Vulpicida pinastri (Scop.) J.-E. Mattsson & M. J. Lai = *Cetraria pinastri*

Xanthomendoza fallax (Arnold) Søchting, Kärnefelt & S.Y. Kondr. = *Xanthomendoza huculica*

Xanthoparmelia somloensis (Gyeln.) Hale sensu auct. Belarus = *Xanthoparmelia angustiphylla*
Xanthoparmelia molliuscula (Ach.) Hale sensu auct. Belarus = *Xanthoparmelia angustiphylla*
Xanthoria candelaria (L.) Th. Fr. = *Polycauliona candelaria*
Xanthoria candelaria (L.) Th. Fr. var. *marginata* Räsänen = *Polycauliona ucrainica*
Xanthoria elegans (Link) Th. Fr. = *Rusavskia elegans*
Xanthoria fallax (Hepp) Arnold sensu Belarus = *Xanthomendoza huculica*
Xanthoria fulva (Hoffm.) Poelt & Petut. = *Xanthomendoza fulva*
Xanthoria ligulata (Körb.) P. James = *Dufourea ligulata*
Xanthoria lobulata (Flörke) B. de Lesd. = *Calogaya lobulata*
Xanthoria parietina (L.) Th. Fr. var. *tumida* Wede = *Xanthoria parietina*
Xanthoria polycarpa (Hoffm.) Rieber = *Polycauliona polycarpa*
Xanthoria polycarpa (Ehrh.) Vain. var. *lychnea* (Ach.) Vain. = *Polycauliona polycarpa*
Xanthoria substellaris (Ach.) Vain. = *Xanthomendoza huculica*
Xanthoria ucrainica S.Y. Kondr. = *Polycauliona ucrainica*
Xanthoria ucrainica S.Y. Kondr. subsp. *marginata* (Räsänen) S.Y. Kondr. & Kärnefelt = *Polycauliona ucrainica*
Xanthoria ulophyllodes Räsänen = *Xanthomendoza ulophyllodes*
Xylographa abietina (Pers.) Zahlbr. = *Xylographa parallela*
Xylographa parela (Ach.: Fr.) Fr. nom. inval. = *Xylographa parallela*
Xylographa parella (Ach.) Behlen & Desbois (misspelling) = *Xylographa parallela*

ACKNOWLEDGEMENTS

James Lendemer (New York) is deeply thanked for the excellent technical and linguistic support. I thank Jurga Motiejūnaitė (Vilnius) for encouraging me to prepare this paper. I thank the following for discussion of historical items: Teuvo Ahti (Helsinki, *Parmelia* and *Xanthoparmelia*), Paweł Czarnota (Rzeszów, *Micarea*), Pradeep K. Divakar (Madrid, *Cetrelia* and *Parmelia*), Juha Pykälä (Helsinki, *Verrucaria*), Arne Thell (Lund, *Parmelia*, *Parmotrema* and *Punctelia*). Pavel Bely (Minsk), Vladimir Golubkov (Grodno), Evgeny S. Korchikov (Samara), Jurga Motiejūnaitė (Vilnius) and Eugene O. Yurchenko (Pinsk) are warmly thanked for their help with the literature search. I am indebted to Ludmila V. Gagarina (Saint Petersburg) and Teuvo Ahti (Helsinki) for checking collections in LE and H, respectively. Kerry Knudsen (Prague) is warmly thanked for consideration on the first draft of the MS. I thank anonymous reviewers and the associate editors for the constructive comments and suggestions on the manuscript. My warmest thanks are due to my wife Natalia and my son Nikolai for their patience during the work on this paper.

LITERATURE CITED

- Ahti, T. and S. Stenroos. 2013. *Cladonia*. In: T. Ahti, S. Stenroos and R. Moberg (eds.). *Nordic Lichen Flora, Volume 5: Cladoniaceae*. Zetterqvist tryckeri AB, Göteborg, pp. 8–87.
Andreev, M.P. 2003a. Genus *Frutidella* Kalb. In: N.S. Golubkova (ed.). *Handbook of the lichens of Russia. 8. Bacidiaceae, Catillariaceae, Lecanoraceae, Megalariaceae, Mycobilimbiaceae, Rhizocarpaceae, Trapeliaceae*. Nauka, St-Petersburg, pp. 63–64. [in Russian].
Andreev, M.P. 2003b. Fam. Lecanoraceae Fée emend. Hafellner. In: N.S. Golubkova (ed.). *Handbook of the lichens of Russia. 8. Bacidiaceae, Catillariaceae, Lecanoraceae, Megalariaceae, Mycobilimbiaceae, Rhizocarpaceae, Trapeliaceae*. Nauka, St-Petersburg, pp. 111–184. [in Russian].
Andreeva, D.M., V.A. Bakharev, M.N. Blyoskina, V.V. Golubkov, V.S. Gumennyi, S.V. Gumennaya, F.I. Ignatovich, V.G. Kornelyuk, T.N. Soltan and L.Ya. Tolkach. 2006. Ecological excursions in Rumlevo Park, 2nd Edition. Grodno Press, Grodno, 92 p. [in Russian].
Arup, U. and E. Sandler Berlin. 2011. A taxonomic study of *Melanelixia fuliginosa* in Europe. *The Lichenologist* 43(2): 89–97.
Bachmann, E. and F. Bachmann. 1920. Litauische Flechten. *Hedwigia* 61(6): 308–342.
Belomesyatseva, D.B. 2004. Mycobiota in a juniper consortium in Belarus. *Pravo i ekonomika*, Minsk, 236 pp. [in Russian].
Bely, P.N. 2008a. Report of *Cladonia caespiticia* (Pers.) Flörke (Cladoniaceae, Ascomycota) from Berezinsky Biosphere Reserve. Specially Protected Natural Territories of Belarus: Research 3: 84–87. [in Russian].
Bely, P.N. 2008b. Lichens of the Berezinsky Biosphere Reserve (Belarus) in need of special protection. In: A.P. Leshukov (ed.). *Organisms, populations, ecosystems: problems and ways of biodiversity conservation: Abstracts of the All-Russian conference “Water and terrestrial ecosystems: problems and prospects of research”*. Vologda State Pedagogical University, Vologda, pp. 174–176. [in Russian].

- Bely, P.N. 2010a. Lichen species diversity of disjointed spruce forests in Lelchitsy district (Gomel region, Belarus). *In*: A.I. Kovalevich (ed.). *Forest science in XXI century: Abstracts of International scientific conference*. Institute of forest, Gomel, pp. 393–396. [in Russian].
- Bely, P.N. 2010b. New localities for rare and protected lichen species in the Berezinsky Biosphere Reserve. *Botany Research* 38: 384–391. [in Russian].
- Bely, P.N. 2010c. Preliminary data on lichens of spruce forests from the Minsk Upland (Belarus). *In*: E.L. Kordyum, O.V. Burova, V.M. Gerasimchuk, L.V. Dymytrova, I.A. Korotchenko, A.S. Mosiakin, M.M. Peregrim, O.V. Polishuk and G.I. Ruguzova (eds.). *Advances in botany and ecology: Abstracts of International conference of young scientists*. Simpheropol, VD “ARIAL”, pp. 39–41. [in Russian].
- Bely, P.N. 2011a. Annotated list of lichens and lichenicolous fungi of spruce ecosystems of Belarus. *Specially Protected Natural Territories of Belarus: Research* 6: 146–178. [in Russian].
- Bely, P.N. 2011b. New lichen species to Belovezhskaya Pushcha. *In*: L.N. Usacheva (ed.). *Environmental state of the Polesie and adjacent territories: Abstracts of scientific conference*. BrSU, Brest, pp. 9–12. [in Russian].
- Bely, P. 2012a. *Absconditella lignicola* (Stictidaceae) – lichen species new to Belarus. *Botanica Lithuanica* 18(2): 164–165.
- Bely, P.N. 2012b. Lichen diversity in spruce forests on some protected natural areas in Baranovichi district (Brest region, Belarus). *In*: V.S. Inkovich (ed.). *Current state and prospects for the development of specially protected natural areas in the Republic of Belarus: Abstracts of the International scientific conference*. Belarusian Publishing House, Minsk, pp. 9–12. [in Russian].
- Bely, P.N. 2012c. New data on lichens of spruce forests from the Minsk Upland (Belarus). *In*: I.B. Zavodnik (ed.). *Actual Problems of Ecology: Abstracts of the VIII International scientific conference, Part 1*. Ya. Kupala Grodno State University, Grodno, pp. 11–13. [in Russian].
- Bely, P.N. 2013. Herbarium of lichen forming fungi of the Central Botanical Garden of the National Academy of Sciences of Belarus. *Botany Research* 42: 53–62. [in Russian].
- Bely, P.N. 2014. New findings of rare protected lichen species on the territory of the Republic of Belarus. *In*: V.N. Burdz (ed.). *Actual Problems of Ecology: Abstracts of the X International Scientific Conference, Part 1*. Ya. Kupala Grodno State University, Grodno, pp. 8–10. [in Russian].
- Bely, P.N. 2015a. Lichen herbarium of the Central Botanical Garden of the National Academy of Sciences of Belarus: current state. *In*: V.V. Titok (ed.). *Problems of conservation biology and use of biological resources: Abstracts of International scientific conference*. Konfido, Minsk, pp. 268–272. [in Russian].
- Bely, P.N. 2015b. Over-mature spruce woodlands of the Berezinsky Reserve as a reference object in the study of spruce forests in the southern taiga subzone. *In*: V.S. Ivkovich (ed.). *Perspectives of conservation and rational use of natural complexes of specially protected natural areas: Abstracts of International scientific conference*. Belarusian Publishing House, Minsk, pp. 9–11. [in Russian].
- Bely, P.N. 2016a. Lichens of spruce forests of Belarus. *Belaruskaja navuka*, Minsk, 230 pp. [in Russian].
- Bely, P. 2016b. New data on distribution and ecology of lichen *Parmotrema stuppeum* (Parmeliaceae, lichenized *Ascomycota*) in Belarus. *Botanica Lithuanica* 22(1): 93–95.
- Bely, P.N. 2016c. Zoological analysis of the lichen biota of spruce forests of Belarus. *Bulletin of A.A. Kuleshov Mogilev State University* 2(48): 72–83. [in Russian].
- Bely, P.N. and V.V. Golubkov. 2008. New and rare lichen species to Berezinsky Biosphere Reserve. *Specially Protected Natural Territories of Belarus: Research* 3: 69–83. [in Russian].
- Bely, P.N. and V.V. Golubkov. 2009a. New lichen species to Berezinsky Biosphere Reserve. *Botany Research* 37: 119–128. [in Russian].
- Bely, P.N. and V.V. Golubkov. 2009b. New data on distribution of *Heterodermia speciosa* (Physciaceae, Lichenes) in Belarus. *Proceedings of the National Academy of Sciences of Belarus. Biological Sciences series* 3: 19–22. [in Russian].
- Bely, P.N. and V.V. Golubkov. 2012. Contribution to the lichen flora of the Berezinsky Biosphere Reserve. *Botany Research* 41: 84–98. [in Russian].
- Bely, P.N. and M.V. Kudin. 2016. Lichen species diversity of disjointed spruce forests on the territory of Invanovo district (Brest region, Belarus). *In*: A.V. Pugachevsky (ed.). *Biology, systematics and ecology of fungi and lichens in natural and agricultural ecosystems: Abstracts of the II International conference*. Kolorgrad, Minsk, pp. 26–30. [in Russian].
- Bely, P.N. and A.M. Nikolaichuk. 2012. Quantitative characteristics of the epiphytic lichen flora of green plantations along transport highways in Minsk. *In*: N.M. Dajneko (ed.). *Young researchers to botanical science 2012: Abstracts of the III International scientific conference*. F. Skorina Gomel State University, Gomel, pp. 57–62. [in Russian].
- Bely, P.N. and M.P. Patapovich. 2012. Influence of environmental pollution on the content of biogenic elements in lichens (on an example of chemical composition analysis of *Hypogymnia physodes*). *In*: N.M. Dajneko (ed.). *Young researchers to botanical science 2012: Abstracts of the III International scientific conference*. F. Skorina Gomel State University, Gomel, pp. 62–66. [in Russian].
- Bely, P.N. and E.A. Sidorovich. 2013. *Hypocenomyce friesii* (Ophiopharmaceae, Ascomycota) – new lichen species to Belarus. *Reports of the National Academy of Sciences of Belarus (Biology)* 57(3): 103–105. [in Russian].

- Bely, P.N. and M.N. Vashkevich. 2017. Herbarium of lichen forming fungi of the Central Botanical Garden of the National Academy of Sciences of Belarus: modern state. In: V.V. Titok (ed.). *Role of Botanical Gardens and Arboreta in conservation, investigation and sustainable using diversity of the plant world: Abstracts of the International conference, Part I*. Medisont, Minsk, pp 357–360. [in Russian].
- Bely, P.N. and A.P. Yatsyna. 2013. Ecological and geographical characteristics of *Lichenomphalia umbellifera* (Hygrophoraceae, Basidiomycota) in Belarus. Reports of the National Academy of Sciences of Belarus (Biology) 57(4): 100–104. [in Russian].
- Bely, P., V. Golubkov, A. Tsurykau and E. Sidorovich. 2014. The lichen genus *Cetrelia* in Belarus: distribution, ecology and conservation. Botanica Lithuanica 20(2): 69–76.
- Błoński, F. 1888. Spis roślin skrytokwiatowych zebranych w r. 1887 w puszczy Białowieskiej. Pamiętnik fizyograficzny 8: 75–119.
- Błoński, F. 1889. Spis roślin zarodnikowych zebranych lub zanotowanych w lecie w r. 1888 w puszczech: Białowieskiej, Świsłockiej i Ładzkiej. Pamiętnik fizyograficzny 9: 63–101.
- Boiko, A.V., V.N. Kiselev, K.D. Chubarov, A.V. Bortnik, N.I. Pikulik and G.G. Bazylenko. 1981. Lichen indication of spreading of sulphur-containing technogenic emissions in green zone of Minsk. Proceedings of the Academy of Sciences of the BSSR Series of Biological Sciences 1: 23–26. [in Russian].
- Brodo, I.M. and D.L. Hawksworth. 1977. *Alectoria* and allied genera in North America. Opera Botanica 42: 1–164.
- Bungartz, F., A. Nordin and M. Grube. 2007. *Buellia*. In: T.H. Nash III, B.D. Ryan, C. Gries and F. Bungartz (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 3*. Arizona State University, Tempe, pp. 113–179.
- Busko, E.G., E.A. Sidorovich, K.D. Chubarov, N.M. Arabei and N.I. Pikulik. 1995. Zoning of the republic territory by contamination level of forest ecosystems by technogenic pollutants based on lichen identification (Chapter 6). In: E.A. Sidorovich (ed.). *Technogenic contamination of forest ecosystems in Belarus*. Navuka i tekhnika, Minsk, pp. 105–148. [in Russian].
- Chernyshov, S.A. 2003. Taxonomic analysis of lichen flora of Logoisk district, Minsk region. Proceedings of Belarusian State Pedagogical University, Series 3 3: 191–194. [in Russian].
- Chernyshov, S.A. 2004a. Biodiversity and geographical analysis of lichen flora of Dzherzhinsk district, Minsk region. In: I.E. Buchenkov, I.I. Kirvel and V.E. Gamanovich (eds.). *Study, management, conservation of biological diversity and landscapes in Belarus: abstracts of scientific conference of students, post-graduate students and employees of Faculty of Natural Sciences of BSPU*. BSPU, Minsk, pp. 52–54. [in Russian].
- Chernyshov, S.A. 2004b. Biological diversity of lichens of Minsk district. In: E.L. Rudashevskaya (ed.). *Abstracts of the VIII Conference of Young Botanists in St.-Petersburg, 17–21 May 2004*. SPSUTD, Saint Petersburg, pp. 89–90. [in Russian].
- Chernyshov, S.A. 2004c. On the issue of lichens diversity in some districts of Minsk region. In: I.E. Buchenkov and A.V. Khandogii (eds.). *Anthropogenic dynamics of landscapes and problems of conservation and sustainable use of biological diversity: Abstracts*. BSPU, Minsk, p. 91. [in Russian].
- Czarnota, P. 2007. The lichen genus *Micarea* (Lecanorales, Ascomycota) in Poland. Polish Botanical Studies 23: 1–199.
- Czyżewska, K. and M. Kukwa. 2005. Notes on two species of *Lepraria* from Belarus. Graphis Scripta 17: 20–21.
- Danilchuk, S.D., V.G. Gatikh, A.S. Palamarchuk, V.G. Gerasimov, N.K. Bobkov and G.L. Palamarchuk. 1976. The reserve on Pripyat. Uradzhai, Minsk. 96 pp. [in Russian].
- Darafeeu, M. (ed.) 1993. Red data book of the Republic of Belarus: Rare and endangered species of animals and plants. Minsk, Belaruskaja Entsiklapedzija, 560 pp. [in Belarusian].
- Dementiev, V.A., A.H. Skliar, O.F. Yakushko and N.T. Romanovsky. 1977. Geography of Belarus. Minsk, Vysheishaja shkola, 320 pp. [in Russian].
- Dobysh, K.V. and E.E. Gaevskii. 2016. Environmental assessment of air pollution in Minsk using lichen indication. In: S.I. Rubtsova and N.V. Lyamina (eds.). *Eco-biological problems of the Azov-Black Sea region and integrated coastal management: Abstracts of 3rd scientific youth conference*. INTS, Sevastopol, pp. 75–79. [in Russian].
- Downar, N. 1861. Enumeratio plantarum circa Mohileviam ad Borysthenem collectarum, tam sponte crescentium quam solo assuefactarum, spatio X millia passuum. Bulletin of Moscow Society of Naturalists 1: 1–28.
- Downar, N. 1862. Enumeratio plantarum circa Mohileviam ad Borysthenem, nec non in ipso gubernio passim, collectarum anno 1861. Bulletin of Moscow Society of Naturalists 2: 1–9.
- Dyukova, T.A. 2008. Study of the air basin quality in the city of Minsk based on a lichen diversity assessment. In: A.M. Dorofeev (ed.). *Biological diversity in the Belarusian Lakeland: current state, problems of use and protection: abstracts of the International scientific conference*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 100–102. [in Russian].
- Edwards, B., A. Aptroot, D.L. Hawksworth & P.W. James. 2009. *Lecanora* Ach. in Luyken (1809). In: C.W. Smith, A. Aptroot, B.J. Coppins, A. Fletcher, O.L. Gilbert, P.W. James and P.A. Wolseley (eds.). *The Lichen Flora of Great Britain and Ireland*. British Lichen Society, London, pp. 465–502.
- Ekman, S. 2004. *Mycobilimbia*. In: T.H. Nash III, B.D. Ryan, P. Diederich, C. Gries and F. Bungartz, (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 2*. Arizona State University, Tempe, pp. 365–367.
- Ekman, S. 2014. The *Bacidia coprodes* group (Ramalinaceae, Lecanoromycetes, Ascomycota), with special reference to the species in Europe and North America. Phytotaxa 191: 66–80.

- Ertz, D. and P. Diederich. 2015. Dismantling Melaspileaceae: a first phylogenetic study of *Buelliella*, *Hemigrapha*, *Karschia*, *Labrocarpon* and *Melaspilea*. *Fungal Diversity* 71: 141–164.
- Esslinger, T.L. 2002. *Physconia*. In: T.H. Nash III, B.D. Ryan, C. Gries and F. Bungartz (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 1*. Arizona State University, Tempe, pp. 373–383.
- Esslinger, T.L. 2016. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the Continental United States and Canada, version 21. *Opuscula Philolichenum* 15: 136–390.
- Filipowicz, K. 1881. Spis mchów, wątrobowców i porostów z niektórych stanowisk Królestwa Polkiego, a mianowicie z doliny Ojcowskiej i Bentkowskiej, okolic Warszawy, Łukowa, Puław i Brześcia Litewskiego zebranych i oznaczonych w latach 1877 i 1879. *Pamiętnik Fizyograficzny* 1: 258–267.
- Fletcher, A. and J.R. Laundon. 2009. *Caloplaca* Th. Fr. (1860). In: C.W. Smith, A. Aptroot, B.J. Coppins, A. Fletcher, O.L. Gilbert, P.W. James and P.A. Wolseley (eds.). *The Lichen Flora of Great Britain and Ireland*. British Lichen Society, London, pp. 245–273.
- Fryday, A.M., C. Printzen and S. Ekman. 2014. *Bryobilimbia*, a new generic name for *Lecidea hypnorum* and closely related species. *The Lichenologist* 46(1): 25–37.
- Gapienko, O.S., D.B. Belomesyatseva, A.P. Yatsyna, T.G. Shabashova, N.A. Arkhipenko, N.N. Nasonova, S.I. Koriniak, S.P. Zhdanovich, S.S. Kolos and Y.A. Shaporova. 2014. Biological diversity of the Braslav Lakes National Park: fungi and lichens. Belarusian Publishing House, Minsk, 200 pp. [in Russian].
- Ges, D.K. 1960. To the lichen studies in Polesie. *Proceedings of the Academy of Sciences of the BSSR Series of Biological Sciences* 4: 54–59. [in Belarusian].
- Ges, D.K. 1961. The first record of a rare form of *Cetraria* in Belarus. *Collection of botanical papers* 3: 167–168. [in Russian].
- Gilibert, J.E. 1781. *Flora lithuanica inchoata, seu Enumeratio plantarum Quas Circa Grodnam coll'egit et determinavit Joannes Emmanuel Gilibert*. Typis S.R.M., Grodnae. 308 pages.
- Gilibert, J.E. 1792. *Exercitia phytologica, quibus omnes plantae Europae, quas vivas invenit in variis herbationibus, seu in Lithuania, Gallia, Alpibus, analysi nova proponuntur*. Lugduni Gallorum: Ex Typis J.B. Delamolliere. 655 pp.
- Golubkov, V.V. 1985. New and rare species for the lichen flora of Belovezhskaya Pushcha. In: A.N. Vitichenko (ed.). *Actual problems of conservation, rational use and reproduction of natural resources (abstracts)*. Belarusian State University, Minsk, p. 99. [in Russian].
- Golubkov, V.V. 1986. Eco-geographical characteristic of some rare and relic lichen species growing within protected natural areas of Belarusian SSR. *Botany Research* 27: 139–141. [in Russian].
- Golubkov, V.V. 1987. Species composition and structure of lichen flora of the State hunting reserve “Belovezhskaya Pushcha”. Part 1. Species composition of lichen flora of the Belovezhskaya Pushcha (an annotated list). *Dep. VINITI*, No 2829–B87. 97 pp. [in Russian].
- Golubkov, V.V. 1991. Lichen flora of the vicinity of Lake Drūkšiai (Drysviaty) (Chapter 9). In: A. Lekavičius (ed.). *State of terrestrial phytocoenosis in the zone of the Ignalina NPP in the pre-launch period (Series “Thermal Engineering and the Environment”, Volume 9)*. Mokslas, Vilnius, pp. 188–200. [in Russian].
- Golubkov, V.V. 1992. Lichens of protected natural territories of Belarus (floristic and ecogeographical characteristic). PhD thesis, Minsk, 503 pp. [in Russian].
- Golubkov, V.V. 1993. New and rare lichen species for the territory of Belarus. In: V. Urbonas, A. Lugauskas, J. Motiejūnaitė and M. Strukčinskas (eds.). *Fungi and lichens in the Baltic region: Abstracts of the 12th International conference on mycology and lichenology*. Vilnius University, Vilnius, pp. 137–138.
- Golubkov, V.V. 1996. Influence of anthropogenic transformation of landscapes on lichen distribution and diversity in the Belarusian Lakeland. In: A.M. Dorofeev (ed.). *Biological conservation in Belarusian Lakeland: Abstracts of regional conference*. Vitebsk State University, Vitebsk, pp. 81–82. [in Russian].
- Golubkov, V.V. 1997. Lichens as components of landscapes and geological structures of some projected and existing natural monuments in Belarus. In: A.R. Aleksandrovich (ed.). *Actual problems of natural sciences: Abstracts of the Jubilee Scientific Conference devoted to the 25th anniversary of the Department of Natural Sciences*. M. Tank Belarusian State Pedagogical University, Minsk, pp. 63–65. [in Russian].
- Golubkov, V.V. 1998. Lichens and forest monitoring. In: A.V. Pugachevskii and A.A. Molozhavskii (eds.). *State and monitoring of forests at the beginning of the XXI century: Abstracts of the International conference*. V.F. Kuprevich Institute of Experimental Botany, Minsk, pp. 78–80. [in Russian].
- Golubkov, V.V. 2000. Lichens of orchards in Belarus and bioecological assessment of their “harmfulness”. In: M.A. Bondartseva (ed.). *Mycology and cryptogamic botany in Russia: traditions and modern state: Abstracts of international conference dedicated to the 100th anniversary of the research on mycology and cryptogamic botany in the V.L. Komarov Botanical Institute RAS*. SPCPA Press, Saint Petersburg, pp. 316–318. [in Russian].
- Golubkov, V.V. 2002. Zoological analysis of the lichen biota of the Dnieper basin (Belarus). In: V.Ya. Kuzmenko (ed.). *The Red Data Book of the Republic of Belarus: state, problems, prospects: Abstract of the scientific conference*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 69–71. [in Russian].

- Golubkov, V.V. 2006. Ecology and geography of some lichens of the genus *Collema* Wigg. in Belarus. In: *Principles and ways of biodiversity conservation: Abstracts of international conference*. Mari State University, Yoshkar-Ola, p. 400. [in Russian].
- Golubkov, V.V. 2007. The list of lichenized fungi of the Mozyr ridge. In: V.V. Valetov (ed.). *Modern ecological problems of sustainable development of Polesie region and adjacent territories: science, education, culture: Abstracts of III International scientific conference. Part I*. I.P. Shamyakin Mozyr State Pedagogical University, Mozyr, pp. 69–73. [in Russian].
- Golubkov, V.V. 2008. Some features of lichen biota of the city of Grodno and its surroundings (Republic of Belarus). In: T.N. Pystina (ed.). *Field Meeting "Lichens of Boreal Forests" and the Fourth Russian Lichenological Workshop: Proceedings*. Syktyvkar, pp. 23–32. [in Russian].
- Golubkov, V.V. 2009a. New data on rare and little-known lichens of Belarus and their protection. In: L.G. Perevedentseva, T.L. Egoshina and V.G. Storozhenko (eds.). *Fungal studies in biogeocenoses: Abstracts of V International conference*. Perm State Pedagogical University, Perm, pp. 279–281. [in Russian].
- Golubkov, V.V. 2009b. Ecological and geographical characteristics of the species of the genus *Thelocarpon* (Ascomycota, Thelocarpaceae) on the territory of Belarus. In: V.V. Valetov (ed.). *Modern ecological problems of sustainable development of the Polesie region and adjacent territories: science, education, culture: Abstracts of IV International scientific conference*. I.P. Shamyakin Mozyr State Pedagogical University, Mozyr, pp. 33–35. [in Russian].
- Golubkov, V.V. 2010. A short preliminary report on the lichen biota study in the Pripyatsky National park in 2009–2010. In: V.S. Ivkovich (ed.). *Wildness protection in the Republic of Belarus: results and prospects: Abstracts of the International scientific conference*. Belarusian Publishing House, Minsk, pp. 150–152. [in Russian].
- Golubkov, V.V. 2011. Lichen biota of Pripyatsky National park. Belarusian Publishing House, Minsk, 192 pp. [in Russian].
- Golubkov, V.V. 2013a. New, rare and little-known lichen taxa found on the territory of Belarus (short report). In: I.B. Zavidnik (ed.). *Actual problems of ecology: Abstracts of the IX International scientific conference. Part I*. Ya. Kupala Grodno State University, Grodno, pp. 22–24. [in Russian].
- Golubkov, V.V. 2013b. New findings of rare and “red-listed” lichens in Belarus. In: V.V. Lysak (ed.). *Modern problems in botanical and mycological research: Abstracts of II International scientific conference*. Belarusian State University, Minsk, pp. 188–190. [in Russian].
- Golubkov, V.V. 2014a. Lichens found on the territory of the Kotra Wildlife Refuge in 1999. In: V.V. Valetov (ed.). *Modern ecological problems of sustainable development of Polesie region and adjacent territories: science, education, culture: Abstracts of International scientific conference*. I.P. Shamyakin Mozyr State Pedagogical University, Mozyr, pp. 70–72. [in Russian].
- Golubkov, V.V. 2014b. Ecological and geographical features of lichens of Belarus. In: M.P. Andreev, D.E. Himelbrant, E.S. Kuznetsova and I.S. Stepanchikova (eds.). *Lichenology in Russia: problems and perspectives: Programme and proceedings of the second international conference*. Komarov Botanical Institute RAS, Saint Petersburg, pp. 80–84. [in Russian].
- Golubkov, V.V. 2014c. Sozological analysis, study and conservation of lichen biota in specially protected natural areas of Belarus. In: A.V. Pugachevsky (ed.). *Current state, development trends, rational use and conservation of the biological diversity of the plant world: Abstracts of the International scientific conference*. Ecoperspective, Minsk, pp. 309–313. [in Russian].
- Golubkov, V.V. 2014d. Lichens in the Red Data Book of Belarus: state, problems and prospects. In: M.P. Andreev, D.E. Himelbrant, E.S. Kuznetsova and I.S. Stepanchikova (eds.). *Lichenology in Russia: problems and perspectives: the second International conference*. V.L. Komarov Botanical Institute RAS, Saint Petersburg, pp. 75–80. [in Russian].
- Golubkov, V.V. and E.E. Bludov. 2005. The Sixth Fort of the Grodno Fortress as one of the perspective and recommended nature protection objects in the Grodno region. In: A.M. Dorofeev (ed.). *Protected natural territories and objects in the Belarusian Lakeland: current state, development prospects: Abstracts of the II International scientific conference*. P.M. Masharov Vitsebsk State University, Vitebsk, pp. 60–61. [in Russian].
- Golubkov, V.V. and L.V. Gagarina. 2010. *Gyalecta derivata* and *Coenogonium pinetii* in Belarus. *Novitates Systematicae Plantarum non Vascularium* 44: 144–152. [in Russian].
- Golubkov, V.V. and A.A. Khartanovich. 2004a. Lichens of tree plantations in the arboretum of Grodno Agricultural University. In: L.A. Zhukova (ed.). *Principles and ways of biodiversity conservation: Collection of materials of the All-Russian scientific conference*. Mari State University, Yoshkar-Ola, pp. 78–79. [in Russian].
- Golubkov, V.V. and A.A. Khartanovich. 2004b. Lichens of tree plantations in the Gilibert park (Grodno). In: E.O. Yurchenko and O.S. Gapienko (eds.). *Biology, systematics and ecology of fungi in natural and agricultural ecosystems: Abstracts of the International scientific conference*. Pravo i ekonomika, Minsk, pp. 62–68. [in Russian].
- Golubkov, V.V. and A.A. Khartanovich. A.A. 2005. Lichens of tree plantations near the Kolozhskaya church and the palace of youth creativity in Grodno. In: N.P. Kanunnikova (ed.). *Actual problems of ecology: Abstracts of the I International scientific conference. Part I*. Ya. Kupala Grodno State University, Grodno, pp. 192–196. [in Russian].

- Golubkov, V.V. and N.N. Kobzar. 1996. Lichens. In: D.D. Stavrovsky and A.A. Kovalev (eds.). *Berezinsky Biosphere Reserve*. Belarusian Encyclopedia, Minsk, pp. 121–125. [in Russian].
- Golubkov, V.V. and N.N. Kobzar. 2005. Lichens. In: L.I. Khoruzhik (ed.). *Red data book of the Republic of Belarus: Rare and endangered species of wild plants*. BelEn, Minsk, pp. 355–383, 434–437, 451–452. [in Russian].
- Golubkov, V.V. and N.N. Kobzar. 2007. The first annotated list of lichen-forming and lichenicolous fungi of the Berezinsky Biosphere Reserve. Specially Protected Natural Territories of Belarus 2: 11–34. [in Russian].
- Golubkov, V.V. and O.M. Kochan. 2007. Ecology and distribution of lichen genus *Peltigera* collected in the western part of the Southwestern branch of the Belarusian Ridge. In: N.P. Kanunnikova (ed.). *Actual problems of ecology: Abstracts of the III International scientific conference*. Ya. Kupala Grodno State University, Grodno, p. 119. [in Russian].
- Golubkov, V.V. and M. Kukwa. 2006. A contribution to the lichen biota of Belarus. *Acta Mycologica* 42(1): 155–164.
- Golubkov, V.V. and A. Matwiejuk. 2009. Some new records of *Rhizocarpon* from North-Eastern Poland and North-Western Belarus. *Acta Mycologica* 44(2): 201–210.
- Golubkov, V.V. and A. Matwiejuk. 2010. The non-yellow species of *Rhizocarpon* (Rhizocarpaceae, lichenized Ascomycota) from Belarus, with hyaline and muriform ascospores. *Botany Research* 39: 15–24.
- Golubkov, V.V. and G.F. Rykovsky. 1988. Botanical rationale for the protection of the “Byki” boulder. *Botany Research* 29: 152–153. [in Russian].
- Golubkov, V.V. and A.S. Shukanov. 1983. Lichens of “Golubye Ozero” State landscape sanctuary. *Botany Research* 25: 56–67. [in Russian].
- Golubkov, V.V. and A.N. Titov. 1990. Calicioid lichens of Belarus. *Novitates Systematicae Plantarum non Vascularium* 27: 97–101. [in Russian].
- Golubkov, V.V. and G.V. Vynaev. 1981. Lichen floristic justification for the protection of natural complexes in some of the existing and projecting landscape reserves in Belarus. Dep. VINITI, No 2528–81. 15 pp. [in Russian].
- Golubkov, V.V. and A.P. Yatsyna. 2010. *Lobaria pulmonaria* (L.) Hoffm. – rare endangered lichen in Belarus. *Botany Research* 38: 84–101. [in Russian].
- Golubkov, V.V. and S.M. Yesis. 1997a. Preliminary data on lichens of the Minsk Upland. In: A.R. Aleksandrovich (ed.). *Actual problems of natural sciences: Abstracts of the Jubilee Scientific Conference devoted to the 25th anniversary of the Department of Natural Sciences*. M. Tank Belarusian State Pedagogical University, Minsk, pp. 66–73. [in Russian].
- Golubkov, V.V. and S.M. Yesis. 1997b. New data on studying lichens of the Minsk Upland. In: O.R. Aleksandrovich (ed.). *Green schools in green lungs of Europe: Abstracts of International scientific conference*. M. Tank Belarusian State Pedagogical University, Minsk, pp. 19–21. [in Russian].
- Golubkov, V.V. and A.A. Zavarzin. 2010. Review and revision of lichens of Belarus: genus *Peltigera* Willd. *Botany Research* 38: 15–27. [in Russian].
- Golubkov, V.V., V.V. Valetov and P.N. Bely. 2007a. Biodiversity and habitat features of lichenized fungi of the “Mozyr ravines” landscape reserve and its environs. In: V.V. Valetov (ed.). *Modern ecological problems of sustainable development of Polesie region and adjacent territories: science, education, culture: Abstracts of III International scientific conference. Part 1*. I.P. Shamyakin Mozyr State Pedagogical University, Mozyr, pp. 73–76. [in Russian].
- Golubkov, V.V., O.V. Belaya and M.V. Kozlovskaya. 2007b. Lichenobiotic analysis of Parmelioid lichens of Belarus. In: A.N. Kusakov (ed.). *Current state of flora and fauna in the countries of the “Dnieper” Euroregion, their protection and rational use: Abstracts of International scientific conference*. F. Skorina Gomel State University, Gomel, pp. 66–71. [in Russian].
- Golubkov, V.V., P.N. Bely, A. Tsurykau and A.P. Yatsyna. 2012. Distribution of lichen *Cetraria islandica* (Parmeliaceae, Lichenized Ascomycota) in Belarus. In: I.B. Zavodnik (ed.). *Actual Problems of Ecology: Abstracts of the VIII International scientific conference, Part 1*. Ya. Kupala Grodno State University, Grodno, pp. 24–25. [in Russian].
- Golubkov, V.V., P.N. Bely and A.P. Yatsyna. 2013. An annotated list of lichens, lichenicolous and related fungi of Narochansky National park. *Botany Research* 42: 99–129. [in Russian].
- Golubkova, N.S. 1996. Genus *Usnea* Dill. ex Adans. In: N.S. Golubkova (ed.). *Handbook of the lichens of Russia 6. Alectoriaceae, Parmeliaceae (Bryocaulon, Cetraria pr.p., Cornicularia, Dactylina, Evernia, Everniastrum, Letharia, Lethariella, Neuropogon, Pseudephebe, Pseudevernia, Usnea), Stereocaulaceae*. Nauka, Saint-Petersburg, pp. 62–107. [in Russian].
- Gorbach, N.V. 1955. To the question of the involvement of lichens-epiphytes in forest coenoses. *Proceedings of the Academy of Sciences of the BSSR* 3: 119–125. [in Russian].
- Gorbach, N.V. 1956. Epiphytic lichens of the BSSR. In: N. V. Turbin (ed.). *Abstracts of research works of the Institute of Biology for 1955*. Publishing house of the Academy of Sciences of the BSSR, Minsk, pp. 19–23. [in Russian].
- Gorbach, N.V. 1957. Materials to lichen flora of Belarus (lichens of Belovezhskaya Pushcha). *Bulletin of the Institute of Biology* 2: 43–46. [in Russian].
- Gorbach, N.V. 1961. Materials to lichen flora of Belarus. *Collection of botanical papers* 3: 174–177. [in Russian].

- Gorbach, N.V. 1962. To the studies of lichen communities on trunks and branches of main forest-forming species. Proceedings of the Academy of Sciences of the BSSR Series of Biological Sciences 1: 100–106. [in Belarusian].
- Gorbach, N.V. 1963. Lichen genus *Ramalina* Ach. in Belarus. Proceedings of the Academy of Sciences of the BSSR Series of Biological Sciences 3: 102–104. [in Russian].
- Gorbach, N.V. 1965a. Lichen genus *Alectoria* Ach. in Belarus. Proceedings of the Academy of Sciences of the BSSR Series of Biological Sciences 1: 55–58. [in Belarusian].
- Gorbach, N.V. 1965b. Lichen settlement on aspen trunks and branches in Corylus-Oxalis type of aspen forest. In: I.D. Yurkevich, N.D. Nesterovich, I.N. Rakhtenko, L.P. Smoliak, V.A. Mikhailovskaja and B.I. Yakushev (eds.). *Ecology of woody plants*. Nauka i tekhnika, Minsk, pp. 115–120. [in Russian].
- Gorbach, N.V. 1965c. On the issue of indicator role of lichens in forest communities. In: E. Parmasto (ed.). *Problems in studying fungi and lichens: IV Symposium of Baltic Mycologists and Lichenologists: conference on methods of studying fungi and lichens in forest biocoenoses*. Academy of Sciences of Estonian SSR, Tartu, pp. 177–181. [in Russian].
- Gorbach, N.V. 1965d. Handbook of foliose and fruticose lichens of the BSSR. Nauka i tekhnika, Minsk, 181 pp. [in Russian].
- Gorbach, N.V. 1970. New lichens to Belarus. In: L.P. Smolyak (ed.). *Floristic and geobotanical research in Belarus*. Nauka i tekhnika, Minsk, pp. 22–24. [in Russian].
- Gorbach, N.V. 1973a. Plant microassociations in lichen type pine forests in south of Belarus. In: I.D. Yurkevich (ed.). *Abstracts of III Delegate meeting of Belarusian Republican Botanical Society. Belovezhskaja Pushcha, September 1973*. Belarusian Republican Botanical Society, Minsk, pp. 96–98. [in Russian].
- Gorbach, N.V. 1973b. Lichens of Belarus. A handbook. Nauka i tekhnika, Minsk. 340 pp. [in Russian].
- Gorbach, N.V. 1978. Influence of emissions of chemical industry plants on epiphytic lichen flora. In: T. Piin (ed.). *Abstracts of the all-Union conference "Lichen indication of environment state" Oct. 3–5, 1978*. Academy of Sciences of the Estonian SSR, Tallinn, pp. 44–48. [in Russian].
- Gorbach, N.V. 1981. Lichens of montane geographical element in lichen flora of Belarus. In: R.N. Shlyakov (ed.). *Bryo- and lichenological research in high mountain areas and North of the USSR*. Kola Branch of the Academy of Sciences of the USSR, Apatity, pp. 86–87. [in Russian].
- Gorbach, N.V. and N.V. Getko. 1978. Content of sulfate ions in lichens as indicator of atmospheric air pollution by sulfur compounds. In: T. Piin (ed.). *Abstracts of the all-Union conference "Lichen indication of environment state" Oct. 3–5, 1978*. Academy of Sciences of the Estonian SSR, Tallinn, pp. 82–85. [in Russian].
- Gorbach, N.V. and A.I. Mashenkova. 1967. Lichens of the Upper Berezina forests. In: I.D. Yurkevich (ed.). *Dendrology and Forestry*. Nauka i tekhnika, Minsk, pp. 163–168. [in Russian].
- Gorbach, N.V. and A.I. Osmolovskaya. 1965. New and rare lichens of Belarus. Botany Research 7: 178–180. [in Russian].
- Gorbach, N.V., E.V. Khodasevich, L.M. Melnikova and N.N. Kobzar. 1982. Change in the quantitative characteristics of chlorophyll content in lichens under the influence of SO₂ atmospheric air pollution. Reports of the Academy of Sciences of the BSSR 26(9): 850–852. [in Russian].
- Hawksworth, D.L., O. Blanco, P.K. Divakar, T. Ahti and A. Crespo. 2008. A first checklist of parmelioid and similar lichens in Europe and some adjacent territories, adopting revised generic circumscriptions and with indications of species distributions. The Lichenologist 40(1): 1–21.
- Hertel, H., T.H. Nash III and B.D. Ryan. 2007. *Catillaria*. In: T.H. Nash III, B.D. Ryan, C. Gries and F. Bungartz (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 3*. Arizona State University, Tempe, pp. 220–226.
- Insarov, G.E. and A.V. Pchelkin. 1982. Quantitative characteristics of epiphytic lichen flora in biosphere reserves. Berezinsky reserve. RIHMI-WDC, Obninsk. 58 pp. [in Russian].
- Jundzill, J. 1830. Opisanie roślin w Litwie, na Wołyniu, Podolu i Ukrainie dziko rosnących, iako i oswoionych: podług wydania szesnastego układu roślin Linneusza. Józef Zawadzki, Wilno, 583 pp.
- Kiselev, V.N., K.D. Chubanov, A.V. Boiko and N.I. Pikulik. 1983. Analysis of technogenic contamination by sulfur compounds in green zone of Minsk by content of sulfate ions in lichen *Hypogymnia physodes*. Reports of the Academy of Sciences of the BSSR 27(12): 1109–1111. [in Russian].
- Kiselev, V.N., K.D. Chubanov, A.V. Boiko, V.K. Lukashev, T.N. Surovaya, A.V. Bortnik and N.I. Pikulik. 1986. Lichen indication of air pollution in green zones of industrial centers in Belarus. Ekologiya (Sverdlovsk) 2: 30–35. [in Russian].
- Knudsen, K. and J. Kocourková. 2017. What is *Acarospora nitrophila* (Acarosporaceae)? Bryologist 120(2): 124–128.
- Kobzar, N.N. 1983. Lichens. In: V.S. Geltman and M.S. Dolbik (eds.). *Berezinsky Biosphere Reserve of Belarusian SSR*. Uradzhai, Minsk, pp. 76–79. [in Russian].
- Kobzar, N.N. 1985. Geographical analysis of the lichen flora of the Berezinsky State Biosphere Reserve. In: E. Vimba (ed.). *Fungi and lichens in ecosystem: Abstracts of the X scientific symposium of mycologists and lichenologists of the Baltic States and Belarus*. P. Stuchka Latvian State University, Riga, pp. 72–74. [in Russian].
- Kobzar, N.N. 1997. Epiphytic lichen flora and the state of substrate under technogenic press of large cities. In: V.I. Parfenov (ed.). *Problems of experimental botany. Belaruskaja navuka*, Minsk, pp. 54–59. [in Russian].

- Kobzar, N.N. 1998. The role of lichens in the composition of the dunes soil cover in Belarusian Polesie. In: *Modern problems of studying, using and protecting the natural complexes in Polesie*. Belsens, Minsk, p. 196. [in Russian].
- Kobzar, N.N. 2006. Lichenized fungi. In: V.I. Parfenov and O.S. Gapienko (eds.). *Macromycetes, micromycetes and lichenized fungi of Belarus from the Herbarium of V.F. Kuprevich Institute of Experimental Botany (MSK-F, MSK-L)*. IVTs Minfina, Minsk, pp. 459–500. [in Russian].
- Kondratyuk, S.Ya. 2004. Genus *Xanthoria* (Fr.) Th. Fr. In: N.S. Golubkova (ed.). *Handbook of the lichens of Russia 9. Fuscideaceae, Teloschistaceae*. Nauka, Saint-Petersburg, pp. 302–323. [in Russian].
- Kondratyuk, S.Ya., A.Ye. Khodosovtsev. and A.N. Oksner. 2004. Genus *Caloplaca* Th. Fr. nom. cons. In: N.S. Golubkova (ed.). *Handbook of the lichens of Russia 9. Fuscideaceae, Teloschistaceae*. Nauka, Saint-Petersburg, pp. 38–235. [in Russian].
- Kondratyuk S., A.P. Yatsyna, L. Lőkös, I. Galanina, M. Haji Moniri and J.-S. Hur. 2013. Three new *Xanthoria* and *Rusavskia* species (Teloschistaceae, Ascomycota) from Europe. *Acta Botanica Hungarica* 55(3–4): 351–365.
- Kopachevskaja, E.G. 1977. Fam. Verrucariaceae. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 4. Verrucariaceae – Pilocarpaceae*. Nauka, Leningrad, pp. 7–54. [in Russian].
- Kotlov, Y.V. 2008. Genus *Rinodina* (Ach.) Gray. In: N.S. Golubkova (ed.). *Handbook of the lichens of Russia. 10. Agryiaceae, Anamylopsoraceae, Aphanopsidaceae, Arthrorhaphidaceae, Brigantiaeaceae, Chrysotrichaceae, Clavariaceae, Ectolechiaceae, Gomphillaceae, Gypsoplacaceae, Lecanoraceae, Lecideaceae, Mycoblastaceae, Phlyctidaceae, Physciaceae, Pilocarpaceae, Psoraceae, Ramalinaceae, Stereocaulaceae, Vezdaeaceae, Tricholomataceae*. Nauka, Saint Petersburg, pp. 309–359. [in Russian].
- Kravchuk, L.A. 2000. Lichen indication of atmospheric air pollution in the city of Svetlogorsk. *Nature management* 6: 98–102. [in Russian].
- Kravchuk, L.A. 2001. Lichen indication of atmospheric air pollution in Belarusian cities. PhD thesis, Minsk, 230 pp. [in Russian].
- Kravchuk, L.A. and S.V. Kakareka. 1995. Lichen indication mapping of the city of Minsk. *Proceedings of the Academy of Sciences of Belarus Series of Biological Sciences* 2: 23–28. [in Belarusian].
- Kravchuk, L.A. and S.V. Kakareka. 1998. Lichen indication of air pollution in the city of Mogilev. *Natural resources* 4: 98–103. [in Russian].
- Krawiec, F. 1938. Materiały do flory porostów północno-wschodniej Polski. *Sprawozdanie Komisji Fizjograficznej PAU* 71: 65–82.
- Kreyer, G.K. 1913. Contribution to lichen flora of Mogilev province. *Collections of 1908–1910. Acta Horti Petropolitani* 31(2): 263–440. [in Russian].
- Kreyer, G.K. 1914. About new lichen *Ramalina baltica* Lettau. *Bulletin du Jardin impérial botanique de Pierre le Grand* 14(3): 277–296. [in Russian].
- Kukwa, M. 2011. The lichen genus *Ochrolechia* in Europe. *Fundacja Rozwoju Uniwersytetu Gdańskiego*, Gdańsk, 309 pp.
- Kuprevich, V.F. 1931. Fungi of Smolevichi district (Minsk region). *Materials of studying flora and fauna of Belarus* 6: 3–24. [in Russian].
- Lapitskaya, S.K., V.G. Sviridenko, A.S. Palamarchuk, S.P. Zakrinichnaya and O.P. Shakhrai. 1979. Content of microelements in lichens of the Pripyatsky Reserve (BSSR). *Plant resources* 15(4): 584–587. [in Russian].
- Lebedeva, L.A. 1925. The first list of fungi and myxomycetes of Belarus. *Mémoires de l'institut agronomique et forestier d'état de la Bélarussie* 4: 35–40. [in Russian].
- Lisická, E. 2005. The Lichens of the Tatry Mountains. *VEDA the Publishing House of the Slovak Academy of Sciences*, Bratislava, 439 pp.
- Ljubitzkaja, L.I. 1914. To lichen flora of Polesie. *Travaux de la Société impériale des naturalistes de Petrograd* 44–45: 185–195. [in Russian].
- Loginov, V.F. 1996. *Climate of Belarus*. Institute of geological sciences of NASB, Minsk, 235 pp. [in Russian].
- Makarevicz, M.F. 1960. To lichen flora of “Belovezhskaja Puscha” reserve. *Notulae systematicae e sectione cryptogamica instituti botanici nomine V.L. Komarovii academiae scientiarum URSS* 13: 25–29. [in Russian].
- Makarevicz, M.F. 1963. *Analysis of lichen flora of the Ukrainian Carpathians*. AS of the URSR Publishing, Kyiv, 262 pp. [in Russian].
- Makarevicz, M.F. 1971a. Fam. Pertasariaceae. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 1. Pertusariaceae, Lecanoraceae and Parmeliaceae*. Nauka, Leningrad, pp. 7–70. [in Russian].
- Makarevicz, M.F. 1971b. Genus *Lecanora*. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 1. Pertusariaceae, Lecanoraceae and Parmeliaceae*. Nauka, Leningrad, pp. 72–146. [in Russian].
- Makarevicz, M.F. 1971c. Genus *Ochrolechia*. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 1. Pertusariaceae, Lecanoraceae and Parmeliaceae*. Nauka, Leningrad, pp. 242–255. [in Russian].
- Makarevicz, M.F. 1977a. Fam. Arthoniaceae. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 4. Verrucariaceae – Pilocarpaceae*. Nauka, Leningrad, pp. 290–325. [in Russian].
- Makarevicz, M.F. 1977b. Fam. Graphidaceae. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 4. Verrucariaceae – Pilocarpaceae*. Nauka, Leningrad, pp. 215–274. [in Russian].

- Makarevicz, M.F. 1977c. Fam. Pilocarpaceae. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 4. Verrucariaceae – Pilocarpaceae*. Nauka, Leningrad, pp. 326–328. [in Russian].
- Makarevicz, M.F. 1977d. Fam. Pyrenulaceae. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 4. Verrucariaceae – Pilocarpaceae*. Nauka, Leningrad, pp. 197–212. [in Russian].
- Makarova, I.I. 2003. Fam. Trapeliaceae M. Choisy ex. Hertel. In: N.S. Golubkova (ed.). *Handbook of the lichens of Russia. 8. Bacidiaceae, Catillariaceae, Lecanoraceae, Megalariaceae, Mycobilimbiaceae, Rhizocarpaceae, Trapeliaceae*. Nauka, St-Petersburg, pp. 239–258. [in Russian].
- Matwiejuk, A. and V.V. Golubkov. 2012. Review and revision of lichens of Belarus: the genus *Rhizocarpon* Ram. ex DC. (Rhizocarpaceae, lichenized Ascomycota). *Botany Research* 41: 147–162.
- Mavrishev, V.V. and T.A. Dyukova. 2008a. Lichen identification of the air basin in Minsk. In: S.P. Kundas, S.B. Melnov and S.S. Pozniak (eds.). *Sakharov readings 2008: Environmental problems of the XXI Century: Abstracts of the 8th International conference*. ISEU, Minsk, pp. 148–149. [in Russian].
- Mavrishev, V.V. and T.A. Dyukova. 2008b. Lichen identification and ecological zoning of the city of Minsk in conditions of anthropogenic pollution. In: M.G. Yasoveev, I.E. Buchenkov and A.V. Khandogij (eds.). *Anthropogenic transformation of landscapes: Abstracts of the IV State scientific conference*. BSPU, Minsk, pp. 46–47. [in Russian].
- Medvedeva, I.V. Environmental protection in the Republic of Belarus: Statistic collection. Belstat, Minsk, 248 pp. [in Russian].
- Meier, A. 1901. Description of Krichevsky County 1786 year. In: E.R. Romanov (ed.). *Mogilev antiquity Collection of articles from «Mogilevsky Provincial Gazette». Issue. 2. 1900–1901*. Province Government Press, Mogilev, pp. 86–137. [in Russian].
- Myllys, L., S. Valmala and H. Holien. 2011. *Bryoria*. In: A. Thell and R. Moberg (eds.). *Nordic Lichen Flora, Volume 4: Parmeliaceae*. Zetterqvist tryckeri AB, Göteborg, pp. 26–37.
- Nimis, P.L. 2016. The Lichens of Italy. A Second Annotated Catalogue. EUT, Trieste, 739 pp.
- Novruzov, V.S. 1990. Florogenetical analysis of lichens of the Greater Caucasus and questions about their conservations (within Azerbaijan). Elm, Baku, 324 pp. [in Russian].
- Motiejūnaitė, J. and K. Czyżewska. 2008. Additions to the biota of lichens and lichenicolous fungi of Poland, with a note on *Lecania prasinoides* in eastern and central Europe. *Polish Botanical Journal* 53(2): 155–162.
- Motiejūnaitė, J. and V.V. Golubkov. 2005. Cyanolichens of freshwater aquatic and subaquatic habitats in Lithuania and Belarus. *Botanica Lithuanica* 11(1): 35–40.
- Motiejūnaitė, J. and P. Grochowski. 2014. Miscellaneous new records of lichens and lichenicolous fungi. *Herzogia* 27: 193–198.
- Nordin, A., R. Moberg, T. Tønsberg, O. Vitikainen, Å. Dalsätt, M. Myrdal, D. Snitting and S. Ekman. 2011. Santesson's Checklist of Fennoscandian Lichen-forming and Lichenicolous Fungi. Ver. 29 April 2011. <http://130.238.83.220/santesson/home.php> [21.12.2017].
- Oksner, A.N. 1924. Materials to lichen flora of Belarus (Preliminary report). *Bulletin du Jardin Botanique de Kieff* 1: 27–36. [in Russian].
- Oksner, A.N. 1925. To lichen flora of Belarus. *Bulletin du Jardin Botanique de Kieff* 3: 33–34. [in Ukrainian].
- Oksner, A.M. 1956. Lichen flora of Ukraine. Vol. 1. Academy of Sciences of Ukrainian SSR Publishing House, Kyiv, 459 pp. [in Ukrainian].
- Oksner, A.M. 1968. Lichen flora of Ukraine. Vol. 2. Naukova dumka, Kyiv, 500 pp. [in Ukrainian].
- Padtsiarob, A.P. and P.N. Bely. 2015. Seasonal variations in the pigment composition of lichen *Xanthoria parietina* (L.) Th. Fr. (Teloschistaceae Zahlbr.) in urban environment. *Ecological Bulletin* 2(32): 83–88. [in Russian].
- Padtsiarob, A.P., S.A. Sergeichik and P.N. Bely. 2013. Research of structure of the pigmentary complex of the lichen *Xanthoria parietina* (L.) Th. Fr. (Teloschistaceae Zahlbr.) in the natural and technogenic environment. *Ecological Bulletin* 2(24): 17–25. [in Russian].
- Palamarchuk, A.S., I.V. Zharkov, V.G. Gerasimov, N.K. Bobkov, G.L. Palamarchuk, V.I. Sautin, T.P. Tratsevskaya and V.P. Khorokhonov. 1973. Belarusian Polesie. Uradzhai, Minsk. 120 pp. [in Russian].
- Palamarchuk, A.S., O.P. Shakhrai and L.N. Parukova. 1975. Lichens. Agriculture of Belarus (Minsk) 1: 43. [in Russian].
- Randlane, T. and A. Saag. 1992. Genus *Cetrelia* Culb. et Culb. in the USSR. *Novitates Systematicae Plantarum non Vascularium* 28: 118–134. [in Russian].
- Rassadina, K.A. 1971. Fam. Parmeliaceae. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 1. Pertusariaceae, Lecanoraceae and Parmeliaceae*. Nauka, Leningrad, pp. 282–386. [in Russian].
- Roms, E.G. 1975. Fam. Cypheliaceae. In: I.I. Abramov (ed.). *Handbook of the lichens of the USSR. 3. Caliciaceae – Gyalectaceae*. Nauka, Leningrad, pp. 37–41. [in Russian].
- Ryan, B.D., H.T. Lumbsch, M.I. Messuti, C. Printzen, L. Śliwa and T.H. Nash III. 2004. *Lecanora*. In: T.H. Nash III, B.D. Ryan, P. Diederich, C. Gries and F. Bungartz, (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 2*. Arizona State University, Tempe, pp. 176–286.
- Savicz, V.P. 1909. Materials to flora of Polesye. List of lichens collected in Minsk Province in 1907. *Travaux des Sociétés scientifiques des étudiants de la faculté des sciences naturelles et mathématiques a l'Université de St. Pétersbourg* 1(1): 43–46. [in Russian].

- Savicz, V.P. 1910. Materials to flora of Polesye. List of lichens collected in Minsk Province in 1909 by L.I. Lyubitskaya. Travaux des Sociétés scientifiques des étudiants de la faculté des sciences naturelles et mathématiques a l'Université de St. Pétersbourg 2: 17–20. [in Russian].
- Savicz, V.P. 1911. Materials to flora of Polesye List of lichens collected in Minsk Province in 1910 by L. I. Lyubitskaya. Travaux des Sociétés scientifiques des étudiants de la faculté des sciences naturelles et mathématiques a l'Université de St. Pétersbourg 3: 57–66. [in Russian].
- Savicz, V.P. 1914. To the lichen studies in the Novgorod Province. Bulletin du Jardin impérial botanique de Pierre le Grand (Supplement 1) 14: 1–104. [in Russian].
- Savicz, V.P. 1925. The results of lichenological research in 1923 in Belarus. Mémoires de l'institut agronomique et forestier d'état de la Bélarussie 4: 1–33. [in Russian].
- Savicz, V.P. and L.I. Savicz. 1924. A short preliminary report on the study of the moss and lichen flora of Belarus in the summer of 1923. Mémoires de l'institut agronomique d'état de la Bélarussie 3: 57–72. [in Russian].
- Scherbakova, T.A. 1982. About the lichen role in forest biogeocoenoses. In: L.S. Kozlovskaya and V.M. Medvedeva (eds.). Nature of marsh and forest systems of Karelia and ways of their development. Petrozavodsk, Karelian Branch of the Academy of Sciences of the USSR, pp. 52–73. [in Russian].
- Serzhanina, G.I. 1984. Cap mushrooms of Belarus: a handbook and a synopsis of flora. Nauka i tekhnika, Minsk, 407 pp. [in Russian].
- Sidorovich, E.A. and V.V. Gorbach. 1998. Risk assessment of technogenic pollution by sulfur compounds of forest phytocenoses of Belovezhskaya Pushcha. In: A.V. Pugachevskii and A.A. Molozhavskii (eds.). State and monitoring of forests at the beginning of XXI century: Abstracts of the International conference. V.F. Kuprevich Institute of Experimental Botany, Minsk, pp. 171–172. [in Russian].
- Shamjakin, I.P. (ed.). 1984. Encyclopedia of Nature of Belarus, Vol. 3. P. Brovka Belarusian Soviet Encyclopedia, Minsk, 488 p. (in Belarusian).
- Sheard, J.V. 2004. *Rinodina*. In: T.H. Nash III, B.D. Ryan, P. Diederich, C. Gries and F. Bungartz, (eds.). *Lichen Flora of the Greater Sonoran Desert Region. Vol. 2*. Arizona State University, Tempe, pp. 467–502.
- Shukanov, A.S., G.F. Rykovsky, G.N. Antonov and O.M. Maslovsky. 1986. Indication of atmospheric air pollution in the city of Minsk by lichens and bryophytes. Bulletin of BSU Series 2 Chemistry, Biology, Geography 2: 36–41. [in Russian].
- Sobchanka, U.A., V.M. Khranchankova, A. Tsurykau, Yu.M. Bachura, V.N. Veremeev and M.H. Halinouski. 2012. Influence of chemical production on the species diversity of lichens, cryptogamic plants and invertebrates. Proceedings of the F. Skorina Gomel State University 5: 16–21. [in Russian].
- Šoun, J., J. Vondrák, U. Söchting, P. Hrouzek, A. Khodosovtsev and U. Arup. 2011. Taxonomy and phylogeny of the *Caloplaca cerina* group in Europe. The Lichenologist 43(2): 113–135.
- Suza, J. 1928. Przyczynek do znajomości flory porostów Polski. Acta Societatis Botanicorum Poloniae 5: 213–219.
- Tessendorff, von F. 1922. Vegetationsskizze vom Oberlaufe der Schtschara (Gouv. Minsk und Grodno). In: *Bericht der Freien Vereinigung für Pflanzengeographie und systematische Botanik Für die Jahre 1920 und 1921*. Im Selbstverlag der Vereinigung, Berlin-Dahlem, pp 25–103.
- Tibell, L. 1999. Caliciales. In: T. Ahti, P.M. Jørgensen, H. Kristinsson, R. Moberg, U. Söchting and G. Thor. *Nordic Lichen Flora, Volume 1: Introductory parts. Calicioid lichens and fungi*. Bohuslän '5, Uddevalla, pp. 20–71.
- Timoshenkova, N.V. and A. Tsurykau. 2005. Ash content in lichen thalli from Gomel. In: S.B. Kurash (ed.). *Innovations – 2005: Abstracts of the XII Belarusian Student Scientific Conference*. I.P. Shamyakin Mozyr State Pedagogical University, Mozyr, p. 132. [in Russian].
- Titov, A.N. 2006. Mycocalicioid fungi (the order Mycocaliciales) of Holarctic. KMK Scientific press, Moscow, 296 pp. [in Russian].
- Tomin, M.P. 1937. Handbook of foliose and fruticose lichens of the USSR. Academy of Sciences of the BSSR Press, Minsk. 312 pp. [in Russian].
- Tomin, M.P. 1939. Handbook of lichens of the BSSR and adjacent regions of the RSFSR and USSR. Part 2. Crustose lichens. Academy of Sciences of the BSSR Press, Minsk. 168 pp. [in Russian].
- Tomin, M.P. 1956. Handbook of crustose lichens of European part of the USSR (except the extreme North and the Crimea). Academy of Sciences of the BSSR Press, Minsk. 534 pp. [in Russian].
- Tsetterman, N.O. 1948. Cladonias of the BSSR. Scientific notes of BSU Biological Series 7: 110–133. [in Russian].
- Tsurikova, N. 2013. Lichen herbarium GSU. III. Parmeliaceae Zenker (*Parmelia* – *Xanthoparmelia*). Proceedings of the F. Skorina Gomel State University 5: 184–190. [in Russian].
- Tsurykau, A. 2004. Epiphytic lichen communities in urban environment (on the example of Gomel). In: D.G. Lin (ed.). *Digest of students' scientific papers of F. Skorina Gomel State University "Creativity of young"*. F. Skorina Gomel State University, Gomel, pp. 79–80. [in Russian].
- Tsurykau, A. 2005. Analysis of the lichen species composition in Gomel. Proceedings of the F. Skorina Gomel State University 6: 125–130. [in Russian].
- Tsurykau, A. 2010. Lichen monitoring in urban areas: justification for test-object choice. Bulletin of the Belarusian National Academy of Sciences. Part. 4. Biology and Medicine. Supplement "Youth in Science – 2009": 272–275. [in Russian].

- Tsurykau, A. 2011. *Arthonia fuliginosa*, *Arthothelium ruanum*, *Cyphelium notarisii* and *Diploschistes muscorum*: new lichen species to Belarus. Bulletin of the I.P. Shamyakin Mozyr State Pedagogical University 1: 31–34. [in Russian].
- Tsurykau, A. 2012. *Opegrapha herbarum* – new lichen species to Belarus. In: N.M. Dajneko (ed.). *Young Researchers for Botanical Sciences 2012: Abstracts of the III International scientific conference*. F. Skorina Gomel State University, Gomel, pp. 72–74. [in Russian].
- Tsurykau, A. 2013a. Lichens of Southeastern Belarus: an experience in lichen monitoring. F. Skorina Gomel State University, Gomel, 276 pp. [in Russian].
- Tsurykau, A. 2013b. *Lecidea mylanderi* – new lichen species to Southeastern Belarus. In: L.V. Averyanov (ed.). *Proceedings of the XIII Congress of the Russian Botanical Society “Modern botany in Russia” and Conference “Scientific basis for the protection and sustainable use of plant cover of the Volga basin”, Part. 1*. Kassandra, Togliatti, pp. 221–222. [in Russian].
- Tsurykau, A. 2017a. New or otherwise interesting records of lichens and lichenicolous fungi from Belarus. III. With an updated checklist of lichenicolous fungi. *Herzogia* 30(1): 152–165.
- Tsurykau, A. 2017b. *Licea parasitica* (Myxomycetes) new to Belarus. *Botanica Lithuanica* 23(1): 63–64.
- Tsurykau, A. 2017c. Contribution to the knowledge of lichen-forming and lichenicolous fungi of Gomel region (Belarus). *Botanica Lithuanica* 23(2): 111–117.
- Tsurykau, A. and P. Czarnota. 2014. Three lichen species of *Micarea* (Pilocarpaceae) new to Belarus. *Acta Mycologica* 49(2): 249–253.
- Tsurykau, A. and V. Golubkov. 2015. The lichens of the *Cladonia pyxidata-chlorophaea* complex in Belarus. *Folia Cryptogamica Estonica* 52: 63–71.
- Tsurykau, A. and J. Etayo. 2017. *Capronia suiiae* (Herpotrichiellaceae, Eurotiomycetes), a new fungus on *Xanthoria parietina* from Belarus, with a key to the lichenicolous species growing on *Xanthoria* s. str. *The Lichenologist* 49(1): 1–12.
- Tsurykau, A. and V.M. Khranchankova. 2006. Structure of lichen flora of Gomel Polesie. In: O.N. Voronova (ed.). *Abstracts of the I (IX) International Conference of Young Botanists, Russia, Saint-Petersburg, May 2006*. SETU Publishing House, Saint-Petersburg, p. 326. [in Russian].
- Tsurykau, A. and V.M. Khranchankova. 2007. Analysis of lichen flora of Gomel region. *Proceedings of the F. Skorina Gomel State University* 6: 48–54. [in Russian].
- Tsurykau, A. and V.M. Khranchankova. 2008. Dependence of corticolous lichens occurrence on bark pH (on the example of Gomel). *Ecological Bulletin* 2: 144–151. [in Russian].
- Tsurykau, A. and V.M. Khranchankova. 2009a. Lichen species new to the city of Gomel. *Natural Resources* 1: 76–80. [in Russian].
- Tsurykau, A. and V.M. Khranchankova. 2009b. Additional information to lichen species from Gomel region. – In: N.M. Dajneko (ed.). *Young researchers to botanical science 2009: Abstracts of the II International scientific conference*. F. Skorina Gomel State University, Gomel, pp. 45–50. [in Russian].
- Tsurykau, A. and V.M. Khranchankova. 2010a. Lichens of Kostjukovka (Gomel district). *Bulletin of the I.P. Shamyakin Mozyr State Pedagogical University* 4: 17–21. [in Russian].
- Tsurykau, A. and V.M. Khranchankova. 2010b. Geographical analysis of lichens of Gomel Region. In: O.V. Lukash, (ed.). *Biodiversity of the border territories of Ukraine, Russia and Belarus in the Post-Chernobyl period: Abstracts of the International scientific conference*. Phytosociocentr, Kyiv, pp. 247–256. [in Russian].
- Tsurykau, A. and V.M. Khranchankova. 2011a. Lichens from Gomel region: a provisional checklist. *Botanica Lithuanica* 17(4): 157–163.
- Tsurykau, A. and V.M. Khranchankova. 2011b. Lichens of Gomel. *Science and Innovations* 6(100): 68–71. [in Russian].
- Tsurykau, A. and V.M. Khranchankova. 2013. *Cliostomum leprosum* (Ramalinaceae) – new lichen species to Gomel region. In: V.V. Lysak (ed.). *Modern Problems in Botanical and Mycological Research: Abstracts of the II International scientific conference*. BSU Publishing Centre, Minsk, pp. 118–119. [in Russian].
- Tsurykau, A. and V. Khranchankova. 2014. Distribution of *Hypogymnia physodes* in pine forests: a preliminary data from the south-eastern Belarus. *Programme and abstracts of XIX Symposium of the Baltic Mycologists and Lichenologists, Latvia, Šķēde, September 22 – 26, 2014*. Latvian Mycological Society, Šķēde, p. 24.
- Tsurykau, A. and V.M. Khranchankova. 2015. Lichens of pine forests in Gomel region: species composition and distribution. In: N.M. Dajneko (ed.). *Geobotanical studies of natural ecosystems: problems and solutions: Abstracts of scientific conference dedicated to 80th Anniversary of Belarusian geobotanist L.M. Sapegin*. F. Skorina Gomel State University, Gomel, pp. 159–163. [in Russian].
- Tsurykau, A. and S.Y. Kondratyuk. 2011. New to Belarus lichen species of the Teloschistaceae. *Science and Innovations* 6: 72. [in Russian].
- Tsurykau, A. and N. Tsurikova. 2017. Lichens of Chenki forest (Gomel district). *Proceedings of the P.M. Masharov Vitebsk State University* 1(94): 61–66. [in Russian].
- Tsurykau, A., V.M. Khranchankova and Yu.M. Jouchenka. 2007. Correlations of the ions concentrations and the projective cover of lichen *Xanthoria parietina* (L.) Th. Fr. *Proceedings of the F. Skorina Gomel State University* 1: 58–61. [in Russian].

- Tsurykau, A., V.V. Golubkov and V.M. Khranchankova. 2009. Lichen specimens from Pripyatsky National Park in the Herbarium of Gomel State University (GSU). In: V.I. Parfenov (ed.). Natural resources of Pripyatsky National Park and other protected areas in Belarus: research, conservation, sustainable use: Abstracts of the scientific conference. Belarusian Publishing House, Minsk, pp. 211–226. [in Russian].
- Tsurykau, A., V. Khranchankova and J. Motiejūnaitė. 2012a. *Pycnora sorophora* (Lecanoraceae) – lichen species new to Belarus. *Botanica Lithuanica* 18(1): 80–82.
- Tsurykau, A., V.M. Khranchankova and M.S. Lazareva. 2012b. Lignicolous lichens of some types of pine forests in the Gomel region. *Problemy lesovedeniya i lesovodstva* (Problems of silviculture) 72: 557–566. [in Russian].
- Tsurykau, A., V.M. Khranchankova and E.V. Tsukanava. 2012c. Lichen herbarium GSU. I. Genus *Cladonia* Hill ex P. Browne. *Proceedings of the F. Skorina Gomel State University* 5: 22–33. [in Russian].
- Tsurykau, A., A. Suija and V. Khranchankova. 2013a. New records of lichenicolous fungi from the Gomel Region of Belarus. *Folia Cryptogamica Estonica* 50: 67–71.
- Tsurykau, A., N.V. Tsurikova, V.M. Khranchankova and E.V. Tsukanava. 2013b. Lichen herbarium GSU. II. Parmeliaceae Zenker (*Alectoria* – *Melanohalea*). *Proceedings of the F. Skorina Gomel State University* 5: 173–183. [in Russian].
- Tsurykau, A., V. Golubkov and M. Kukwa. 2014a. New or otherwise interesting records of lichens and lichenicolous fungi from Belarus. *Herzogia* 27(1) 111–120.
- Tsurykau, A., V.V. Golubkov, N.V. Tsurikova and V.M. Khranchankova. 2014b. Lichens of genus *Lepraria* (Stereocaulaceae) in the city of Grodno. In: V.N. Burdz (ed.). *Actual Problems of Ecology: Abstracts of the X International Scientific Conference, Part 1*. Ya. Kupala Grodno State University, Grodno, pp. 50–52. [in Russian].
- Tsurykau, A., V. Golubkov and P. Bely. 2015. The genera *Hypotrachyna*, *Parmotrema* and *Punctelia* (Parmeliaceae, lichenized Ascomycota) in Belarus. *Herzogia* 28(2): 736–745.
- Tsurykau, A., A. Suija, B. Heuchert and M. Kukwa. 2016a. New or otherwise interesting records of lichens and lichenicolous fungi from Belarus. II. *Herzogia* 29(1): 164–175.
- Tsurykau, A., V. Golubkov and P. Bely. 2016b. The genus *Lepraria* (Stereocaulaceae, lichenized Ascomycota) in Belarus. *Folia Cryptogamica Estonica* 53: 43–50.
- Tsurykau, A., V. Golubkov and P. Bely. 2018. The lichen genus *Xanthoparmelia* (Parmeliaceae) in Belarus. *Folia Cryptogamica Estonica* 55: 125–132.
- Valko, O.N. 2008. Bioindication of gas-dust type contamination by the lichen biota state assessing. In: I.B. Zavodnik (ed.). *Actual Problems of Ecology: Abstracts of the 4 International scientific conference*. Ya. Kupala Grodno State University, Grodno, pp. 125–128. [in Russian].
- Vitikainen, O. 2007. Peltigeraceae. In: T. Ahti, P.M. Jørgensen, H. Kristinsson, R. Moberg, U. Söchting and G. Thor. *Nordic Lichen Flora, Volume 3: Cyanolichens*. Mediaprint AB, Uddevalla, pp. 113–131.
- Vondrák, J., Z. Palice, A. Khodosovtsev and S. Postoyalkin. 2010. Additions to the diversity of rare or overlooked lichens and lichenicolous fungi in Ukrainian Carpathians. *Chornomorski Botanical Journal* 6(1): 6–34.
- Vyazovskaya, K.G. and V.V. Golubkov. 1997. Lichen identification and lichen indicators in determination of air quality in Minsk. In: O.R. Aleksandrovich (ed.). *Green schools in green lungs of Europe: Abstracts of International scientific conference*. M. Tank Belarusian State Pedagogical University, Minsk, pp. 17–18. [in Russian].
- Wilk, K. and A. Flakus. 2006. Four species of *Caloplaca* (Teloschistaceae, lichenized Ascomycota) new to Poland. *Mycotaxon* 96: 61–71.
- Wyssotzky, G.N., L.I. Savicz and V.P. Savicz. 1925. By southern Belarus. Observations at the botanical excursion. *Mémoires de l'Institut agronomique et forestier d'état de la Bélarussie* 4: 160–209. [in Russian].
- Yatsyna, A.P. 2004. Lichen diversity of raised bogs of Ostrova Duleby sanctuary. In: V.D. Polyksenova (ed.). *Actual problems of phyto- and mycobiota study: Collection of articles of the International scientific conference*. Belarusian State University Publishing Center, Minsk, pp. 97–98. [in Russian].
- Yatsyna, A.P. 2005. Lichen biota of the park “Stankovo”. In: M.A. Bondartseva (ed.). *Fungi in natural and anthropogenic ecosystems: Proceedings of the International conference. Vol. 2*. V.L. Komarov Botanical Institute, Saint-Petersburg, pp. 347–350. [in Russian].
- Yatsyna, A.P. 2006a. Lichens of the Logoisk town park (Belarus). In: O.N. Voronova and A.N. Ivanova (eds.). *Proceedings of the I (IX) conference of young botanists in Saint-Petersburg*. V.L. Komarov Botanical Institute, Saint-Petersburg, pp. 327–328. [in Russian].
- Yatsyna, A.P. 2006b. Epiphytic lichens of parks of Belarus. In S.B. Kurash (ed.). *Innovations-2006: Abstracts of XIII State student scientific conference*. I.P. Shamyakin Mozyr State Pedagogical University, Mozyr, p. 153. [in Russian].
- Yatsyna, A.P. 2007a. Lichen biota of the park “Komarovo”. In: *Biodiversity. Ecology. Adaptation. Evolution: Proceedings of the III International young scientists conference*. Pechatnyi dom, Odesa, p. 101.
- Yatsyna, A.P. 2007b. The features of development of the lichen family Physciaceae Zahlbr. in five parks of Minsk region (Belarus). In: *Actual problems of botany and ecology: Abstracts of the International conference of young scientists*. Fitosotsiotsentr, Kyiv, pp. 47–48. [in Russian].

- Yatsyna, A.P. 2008. Essay on lichens of the field camp “Shchitovka” of Vitebsk State University. In: A.M. Dorofeev (ed.). *Biodiversity in Belarusian Lakeland: modern state, problems of use and conservation: Abstracts of the II International scientific conference*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 287–289. [in Russian].
- Yatsyna, A.P. 2009a. Epiphytic lichen sinusia of *Vaccinium myrthillus* – *Pleurozium* type of pine forest of the field camp “Shchitovka”. In: A.L. Gladkov (ed.). *Proceedings of the State scientific conference of students, postgraduate students and young scientists*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 94–95. [in Russian].
- Yatsyna, A.P. 2009b. Essay on lichens of Osipovich district, Mogilev region. In: M.E. Nikiforov (ed.). *Problems of biological conservation and use of biological resources: Abstracts of International scientific conference; Part I*. Magic, Minsk, pp. 293–296. [in Russian].
- Yatsyna, A.P. 2009c. Genus *Cladonia* P. Browne in lichen communities of Narochansky National Park. In: V.S. Lushtyk (ed.). *Narochansky National Park: scientific provision, nature protection and environmental-educational activity, recreational potential: Abstracts of State scientific conference*. Medisont, Minsk, pp. 220–224. [in Russian].
- Yatsyna, A.P. 2009d. Lignicolous lichens of pine communities of the Narochansky National Park. In: A.M. Dorofeev (ed.). *Protected natural territories and objects in the Belarusian Lakeland: current state, development prospects: Abstracts of International scientific conference*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 85–86. [in Russian].
- Yatsyna, A.P. 2009e. Preliminary results and prospects of the inventory of Belarusian lichen specimens in the herbarium of the M.G. Kholodny Institute of Botany of NAS of Ukraine. In: E.L. Kordyum (ed.). *Actual problems of botany and ecology: Abstracts of International conference of young scientists*. Tutorials and manuals, Ternopil, pp. 90–91. [in Russian].
- Yatsyna, A.P. 2010a. Data to lichen flora of Volozhin district (Belarus). In: Ju.S. Otmakhov (ed.). *Prospects of development and problems of modern botany: Abstracts of the II(IV) All-Russian youth scientific conference*. Siberian Branch of RAS Publishing House, Novosibirsk, pp. 204–205. [in Russian].
- Yatsyna, A.P. 2010b. Genera *Baeomyces* Pers. and *Dibaeis* Clem. in lichen biota of Belarus. In: V.S. Ivkovich (ed.). *Wildness protection in the Republic of Belarus: results and perspectives: Abstracts of International conference*. Belarusian Publishing House, Minsk, pp. 236–239. [in Russian].
- Yatsyna, A.P. 2010c. Lichen flora of the “Braslav Lakes” National Park. Specially Protected Natural Territories of Belarus: Research 5: 227–247. [in Russian].
- Yatsyna, A.P. 2010d. Lichen species of the quarry Ruba and the Museum-Estate of I.E. Repin “Zdravnevo” (Vitebsk district). In: A.P. Solodov (ed.). *Science to Education, Production, Economics: Abstracts of the XV (62) Regional scientific conference*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 102–103. [in Russian].
- Yatsyna, A.P. 2010e. Lichens of the genus *Xanthoria* s.l. (Teloschistaceae Zahlbr.) in Belarus. Botany Research 39: 144–160. [in Russian].
- Yatsyna, A.P. 2010f. Lichens of oligotrophic and mesotrophic bogs of the Belarusian Lakeland. In: V.Y. Kuzmenko (ed.). *Ecosystems of marshes and lakes at the Belarusian Lakeland and adjacent territories: current state, problems of use and protection: Abstracts of International scientific conference*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 133–135. [in Russian].
- Yatsyna, A.P. 2010g. Lichen biota of the biological reserve “Slonimsky”. In: I.V. Abramova (ed.). *Environmental monitoring: Abstracts of International scientific conference*. A.S. Pushkin Brest State University, Brest, pp. 130–132. [in Russian].
- Yatsyna, A.P. 2010h. New localities of rare and protected lichen species on the territory of the Minsk Upland. In: I.B. Zavodnik (ed.). *Actual Problems of Ecology: Abstracts of the VI International scientific conference*. Ya. Kupala Grodno State University, Grodno, pp. 73–75. [in Russian].
- Yatsyna, A.P. 2011a. Current state of lichen flora of the Belarusian Lakeland. In: L.M. Merzhvinsky (ed.). *Biodiversity of the Belarusian Lakeland*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 91–103. [in Russian].
- Yatsyna, A.P. 2011b. New data on the lichen genus *Tuckermannopsis* Gyeln. (Parmeliaceae) in the flora of Belarus. In: L.N. Usacheva (ed.). *State of environment at Polesie and adjacent territories: Abstracts of State scientific conference*. A.S. Pushkin Brest State University, Brest, pp. 48–50. [in Russian].
- Yatsyna, A.P. 2011c. New findings of lichens and non-lichenized fungi in Belarus. In: N.P. Kanunnikova (ed.). *Actual Problems of Ecology: Abstracts of the VII International scientific conference*. Ya. Kupala Grodno State University, Grodno, pp. 54–55. [in Russian].
- Yatsyna, A.P. 2011d. New findings of protected lichen species in Belarus. In: V.Ya. Kuzmenko (ed.). *Red Data Book of the Republic Belarus: current state, problems and perspectives: Abstracts of International scientific conference*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 194–196. [in Russian].
- Yatsyna, A.P. 2011e. The first contribution to lichens, lichenicolous and allied fungi from Braslav lakes National park (NW Belarus). Botanica Lithuanica 17(4): 177–184.
- Yatsyna, A.P. 2012a. Essay on lichens of Glussk district. In: I.N. Sharukho, I.I. Pirozhkin and I.I. Barinova (eds.). *Problems of sustainable development of regions in the Republic of Belarus and neighboring countries:*

- Abstracts of International scientific conference. Part 2.* A.A. Kuleshov Mogilev State University, Mogilev, pp. 316–320. [in Russian].
- Yatsyna, A.P. 2012b. Lichen biota of “Ignatichi” park (Belarus). *In: I.B. Zavodnik (ed.). Actual Problems of Ecology: Abstracts of the VIII International scientific conference, Part 2.* Ya. Kupala Grodno State University, Grodno, pp. 76 – 77. [in Russian].
- Yatsyna, A.P. 2012c. Lichens of “Shipyany” park (Smolevichi district, Belarus). *In: V.I. Parfenov (ed.). Problems of conservation biology and use of biological resources: Abstracts of the International scientific conference.* Minsktipproject, Minsk, pp. 278 – 281. [in Russian].
- Yatsyna, A.P. 2012d. New and interesting findings of lichens and non-lichenized fungi for Belarus. *Proceedings of the P.M. Masherov Vitebsk State University* 5(71): 45–49. [in Russian].
- Yatsyna, A.P. 2012e. New species of lichens, lichenicolous and non-lichenized fungi for Pripyatsky National Park. *In: V.S. Ivkovich (ed.). Current state and prospects for the development of specially protected natural areas of the Republic of Belarus: Abstracts of the International scientific conference.* Belarusian Publishing House, Minsk, pp. 101–104. [in Russian].
- Yatsyna, A.P. 2012f. Placoid lichens in the flora of Belarus. *In: N.M. Dajneko (ed.). Young researchers to botanical science 2012: Abstracts of the III International scientific conference.* F. Skorina Gomel State University, Gomel, pp. 79–82. [in Russian].
- Yatsyna, A.P. 2012g. Taxonomic analysis of lichens from pine forests of Belarus. *Botany Research* 41: 63–77. [in Russian].
- Yatsyna, A.P. 2013a. An annotated checklist of lichens from pine forests of Belarus. *Specially Protected Natural Territories of Belarus: Research* 8: 152–186. [in Russian].
- Yatsyna, A.P. 2013b. Lichens of manor parks from central part of Minsk region (Belarus). *Novitates Systematicae Plantarum non Vascularium* 47: 302–309. [in Russian].
- Yatsyna, A.P. 2013c. Lichens of manor parks from north-western part of Minsk region. *Proceedings of the P.M. Masherov Vitebsk State University* 5(77): 58–64. [in Russian].
- Yatsyna, A.P. 2013d. New and interesting records of lichens and lichenicolous fungus for Belarus. *Proceedings of the P.M. Masherov Vitebsk State University* 3(75): 62–67. [in Russian].
- Yatsyna, A.P. 2013e. New findings of protected lichens in Belarus. *In: I.M. Prischepa (ed.). Ecological culture and environmental protection: 1st Dorofeev Readings: Abstracts of the International scientific conference.* P.M. Masherov Vitebsk State University, Vitebsk, pp. 245–247. [in Russian].
- Yatsyna, A.P. 2013f. New species of lichens and non-lichenized fungi for Braslav Lakes National park. *Proceedings of the P.M. Masherov Vitebsk State University* 2(74): 53–59. [in Russian].
- Yatsyna, A.P. 2014a. Lichens from manor parks in Minsk region (Belarus). *Botanica Lithuanica* 20(2): 159–168.
- Yatsyna, A.P. 2014b. Lichens of the palace and park complex “Radziwill” in Nesvizh (Belarus). *In: A.V. Pugachevsky (ed.). Current state, development trends, rational use and conservation of the biological diversity of the plant world: Abstracts of the International scientific conference.* Ecoperspective, Minsk, pp. 162–165. [in Russian].
- Yatsyna, A.P. 2014c. Phytocoenotic features of lichen biota formation in pine forests in Belarus. *Proceedings of the P.M. Masherov Vitebsk State University* 1(79): 36–43. [in Russian].
- Yatsyna, A.P. 2014d. Preliminary results of the lichen inventory of the “Middle Pripyat” landscape reserve. *Specially Protected Natural Territories of Belarus: Research* 9: 206–217. [in Russian].
- Yatsyna, A.P. 2015a. Analysis of lichen substrates in manor parks in Minsk region (Belarus). *In: V.G. Storozhenko and V.B. Zviagintsev (eds.). Problems of forest phytopathology and mycology: Abstracts of the IX International conference.* BSTU, Minsk, pp. 272–275. [in Russian].
- Yatsyna, A.P. 2015b. Environmental significance of manor parks in Minsk region. *In: V.V. Titok (ed.). Problems of conservation biology and use of biological resources: Abstracts of International scientific conference.* Konfido, Minsk, pp. 245–250. [in Russian].
- Yatsyna, A.P. 2015c. Lichen biota of the “Alba” monument of nature. *Proceedings of the P.M. Masherov Vitebsk State University* 2–3(86–87): 65–71. [in Russian].
- Yatsyna, A.P. 2015d. Lichen biota of the Grodno fortress forts (Belarus). *In: Proceedings of III(XI) International botanical conference of young scientists in Saint-Petersburg.* Komarov Botanical Institute, Saint-Petersburg, p. 46. [in Russian].
- Yatsyna, A.P. 2015e. Lichens. *In: I.M. Kachanovsky (ed.). Red data book of Belarus. Plants: rare and endangered species of wild plants.* P. Brovka Belarusian Encyclopedia, Minsk, pp. 325–354, 407–412. [in Russian].
- Yatsyna, A.P. 2016a. A review of the lichen genera *Chaenotheca* and *Sclerophora* (Coniocybaceae) in Belarus. *Novitates Systematicae Plantarum non Vascularium* 50: 257–267. [in Russian].
- Yatsyna, A.P. 2016b. Genus *Ramalina* Ach. in lichen herbarium of laboratory of mycology at the V.F. Kuprevich Institute of Experimental Botany of National Academy of Sciences of Belarus. *Proceedings of the P.M. Masherov Vitebsk State University* 2(91): 28–37. [in Russian].
- Yatsyna, A.P. 2016c. Lichen biota of some existing and proposed protected areas in the Grodno region (Belarus). *Bulletin of Ya. Kupala Grodno State University, Series 5: Economics, Sociology, Biology* 6(2): 141–147. [in Russian].

- Yatsyna, A.P. 2017. Lichens of mature spruce forests of the two protected areas of Vitebsk region. Proceedings of the P.M. Masherov Vitebsk State University 3(96): 74–79. [in Russian].
- Yatsyna, A.P. and V.V. Golubkov. 2009. Preliminary analysis and perspectives of the study of lichen flora of the Narochansky National Park. In: I.P. Prischepa (ed.). *61 Regional scientific conference of teachers, researchers, post-graduate students: a collection of articles*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 26–28. [in Russian].
- Yatsyna, A.P. and S.Y. Kondratyuk. 2013. New data about Xanthorioid lichens from Belarus. Bulletin of the I.P. Shamyakin Mozyr State Pedagogical University 3(40): 29–33. [in Russian].
- Yatsyna, A.P. and L.M. Merzhvinsky. 2012. Workbook on lichens. P.M. Masherov Vitebsk State University, Vitebsk, 212 pp. [in Russian].
- Yatsyna, A.P. and J. Motiejūnaite. 2015. New and noteworthy lichens to Belarus. Botanica Lithuanica 21(1): 57–63.
- Yatsyna, A.P. and A.I. Stefanovich. 2005. Lichens of Narochansky National Park. In: A.M. Dorofeev (ed.). *Protected natural areas and objects of Belarusian Lakeland: modern state, perspectives of development: II International scientific conference*. P.M. Masherov Vitebsk State University, Vitebsk, pp. 196–198. [in Russian].
- Yatsyna, A.P. and E.O. Yurchenko. 2007. A bibliography of Belarusian lichenology. – Mycena 7: 48–107.
- Yatsyna, A.P. and E.O. Yurchenko. 2013. Lichens of historical manor park in northwest – central Belarus. Bulletin of Palesky State University, Natural sciences 2: 3–11.
- Yurchenko, E.O. 2011. Lichens of Belarus: an illustrated electronic handbook. K.E. Dovgailo, Minsk, 1 CD.
- Yurchenko, E.O. and V.V. Golubkov. 2003. The morphology, biology, and geography of a necrotrophic basidiomycete *Athelia arachnoidea* in Belarus. Mycological Progress 2(4): 275–284.
- Yurkevich, I.D., D.S. Golod and V.S. Aderikho. 1979. Vegetation of Belarus, its cartography, protection and utilization. Nauka i tekhnika, Minsk, 248 pp. [in Russian].
- Zeliankevich, N.A., D.G. Grummo, O.V. Sozinov and O.V. Galanina. 2016. Flora and vegetation of the raised bogs of Belarus. StroyMediaProekt, Minsk, 244 pp. [in Russian].

APPENDIX I – TAXA NOT DOCUMENTED FROM BELAUS IN ~100+ YEARS

As is outlined in the results and discussion section, this is a listing of the 28 taxa that appear not to have been relocated in Belarus in nearly a century or more. Efforts to relocate extant populations of lichens known only from historical reports should prioritize these species.

- Gilibert (1781, 1792)
Blennothallia crispa
- Savicz (1911)
Bacidia igniarii
Brianaria tuberculata
- Kreyer (1913)
Bacidia circumspecta
Blastenia crenularia
Cresponea chloroconia
Lecidella carpathica
Schaereria fuscocinerea
Scytinium tenuissimum
- Bachmann & Bachmann (1920)
Bacidia friesiana
Bryobilimbia sanguineoatra
Caloplaca chlorina
Caloplaca obscurella
Cladonia cervicornis
Clauzadea monticola
Lathagrium auriforme
Micarea lynceola
Physciella chloantha
Rhizocarpon subpostumum
Trapelia glebulosa
Trapelia involuta
Verrucaria floerkeana
Verrucaria rupestris

Savicz & Savicz (1924)
 Byssoloma subdiscordans
Wyssotzky et al. (1925)
 Trapeliopsis gelatinosa
Savicz (1925)
 Nephroma bellum
 Nephroma parile
 Nephroma resupinatum